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Opinion whether to continue the practice of "grandfathering."

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Date: October 21, 2002 10:27 AM
Author: Simulation Forum: Administrator (webmasterast@faa.gov)
Subject: Opinion on whether to continue the practice of "grandfathering."

The FAA seeks the public's opinion on whether to continue the practice of "grandfathering." Please include whether this practice should have an end point either in general or for some specific aspects of the practice. If you believe "grandfathering" should be discontinued, include suggestions on the conditions for instituting an end point.

NOTE: The term "grandfathering" is used to allow standards, in effect at the time of original qualification of a specific Flight Simulation Device (FSD), to continue to apply to that specific FSD regardless of subsequent modification to those standards. This provision addresses areas such as visual systems, motion systems, aerodynamic data, required tests, and individual test tolerances.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=38)

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Date: December 04, 2002 03:31 PM
Author: Michael Brown (michael.d.brown@ual.com)
Subject: Grandfathering

New simulators are certainly more pleasing to train in, but do they provide better training?
That is literally the multi-million dollar question.

?New? simulators are generally characterized by full color, wide visual systems; data packages with more tests and that match flight test data more closely; and more responsive motion systems. Which one or what combination of these advances leads to improved training?

Most simulator training for experienced commercial flight crews occurs in low visibility conditions, with the exception of specific maneuvers such as visual approaches. Does a wide visual system add to the training? Is it necessary to have accurately modeled terrain beyond 10 miles from the airport? Newer visual systems can actually be less reliable than some older ones. Which is better, reliability or the availability of ?eye candy?? Yet, Lufthansa reports that with low time ab initio pilots, the time required

for them to master landings is reduced with the textured visual models now available on the latest visual systems. Perhaps visual system requirements are a function of pilot experience. Runway incursions are a growing problem. If this were sufficient reason to demand that visual systems support models that adequately replicate taxiway/runway signage, then one is arguing from silence to revoke grandfather rights on the data package and motion.

Modern data packages from the major aircraft manufacturers are certainly better. If such a new data package is available and installed in an old simulator, the simulator may or may not "fly" better. Many simulators qualified under early Advisory Circulars and with old data packages "fly" just fine. Objective test tolerances are rarely based on a causal effect on the simulated aircraft dynamics. Even if it could be shown that requiring a simulator to meet the latest objective flight- and ground-related tests and tolerances improved the simulator handling and performance, again, it would be hard to justify a blanket revocation of grandfather rights as they apply to visual and motion systems.

Motion systems are under attack on two fronts. The FAA's Volpe Institute has completed a motion study using experienced 747-400 pilots in NASA's 747-400 simulator. Preliminary results seem to indicate that motion did not add to training for this test group. The FAA's AFS-230 is allowing one major carrier to perform limited LOEs in a no-motion training device. Based on these two instances alone, what possible justification could there be for revoking motion system grandfathering for devices used to train experienced pilots.

Too often, requirements for training devices are based on the experienced-based feeling of those establishing the program or the level of technology available (e.g., ICAO document, Manual Criteria for the Qualification of Flight Simulators). Research-backed evidence is lacking. When one considers the multi-million dollar question above, the question of grandfather rights seems to be only one of two questions of how best to train a pilot to accomplish a task or set of tasks: What quality (old or new) of device at a given level is best for a given task or task set?, and What level of device is best for a given task or task set?

As for the quality of a simulator at a given level, with no real evidence to the contrary the increasing pace of component obsolescence will be the best manager of the grandfathering process. The NSPM can utilize the FSD Directive process to require upgrades to targeted systems or programming as dictated by safety of flight reasons.

However, that leaves the unanswered question of what level device is best for training a task or set of tasks. Previously, training developers relied on the guidance of 8400.10, 8700.10, the requirements set forth in the Table of Subjective Tests in AC 120-40x, etc. The media analysis allowed under SFAR 58, Advanced Qualification Program, has removed the linkage of training tasks to FSD level and the proposed blank-sheet-of-paper approach implied by the FSD Statement of Qualified/Non-qualified Task List continues down this path. The question of what FSD is best to train a given task or task set remains unanswered.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=106)

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Date: December 05, 2002 02:23 PM

Author: Patrick T. Cleary (patrick.cleary@nwa.com)

Subject: Grandfathering

This decision should be based solely on Training Requirement(s) for the pilot certificate or rating sought or recurrent pilot/crew training requirements, not on currently existing technological capabilities.

An FSD is a media for the training of certain aircraft operational tasks to a standard level of proficiency. It may not be the only media or in fact the "best" media where specific piloting tasks can be mastered and, in itself, may not be utilized as the sole media for training in an FAA approved training syllabus. If a simulator has been qualified to some "Level" at an older (current at the time) set of simulator performance standards, data or required tests, in comparison to then the most recent, one would/should question the basis for the updated changes. If the Training Requirements (established by the FAA itself) mandate new tasks that "grandfathered" simulator equipment can not meet, the simulator should be restricted from training of that task(s). As "restrictions" develop the simulator operator will either accept the reduced training capability or, take actions to "update" the device to a "Level" required to meet the operators training syllabus.

The FAA needs to maintain the minimum standard for each "Level" of FSD, and that "Level" should conform to meeting the current Training Requirements.

With respect to motion systems, numerous high performance aircraft (military) simulators do not contain motion systems at all. One wonders if motion systems would have ever come into useage if visual systems had matured first in the simulator evolution. As a 121 operator I have no negative feed back from crews regarding the performance of 6dof motion systems of any vintage simulator. This would imply to me that the existing 6dof motion systems adequately support the simulation of transport category aircraft. If other aircraft are more responsive than I would agree the motion system should replicate the design aircraft response.

The FAA/NSP is chartered to establish the minimum requirements for an FSD. Those requirements (based on training requirements) should be uniformly applied across each of the same Level FSD, regardless of its initial qualification date.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=131)

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Date: December 09, 2002 01:44 PM

Author: Ron Shoulars (ron.shoulars@aa.com)

Subject: grandfathering

I'm probably guilty of being a little bit "old school" when it comes to how good a training device should be. When AA got the original "Murray Bird" (One of which we still have on display) we thought that training couldn't get much better. Then in the 1930's along came Edwin Link with the original "Blue Box". Now we had motion. Then we added a visual system on a moving belt. How much better could it get?? Obviously, had those devices been "grandfathered" I don't think anyone would argue that they should be eliminated. However, I bet there are very few Part 121 pilots that can match the instrument flying "stick and rudder" skills of the old guys that learned on the "old systems".

As Mike Brown aptly stated do the newer simulators "...provide better training?" From a total systems approach the answer is "Yes they do!" The more bells-and-whistles, fancy visual systems, etc. we

include, the greater the ease with which the pilot transitions from the simulator environment to hauling passengers. However, simply changing the number of the AC/NPRM and adding a few objective/subjective tests doesn't necessarily increase the credibility of training done in a particular simulator.

I quite often use the "5000 type rating" theory. If a device was good enough to be use for the last 5000 checks, has no major complaints from those it's trained, and is still maintained properly, there is no reason it shouldn't be grandfathered for the next "5000 type ratings".


















If money was not a problem, I don't think anyone would argue against eliminating the "grandfather" clauses. Think about the job security! However, until it can be shown that training requirements dictate killing the "grandfather" rights no carrier can afford to continuously upgrade their simulators or FTD.

Leave the "grandfather" provisions alone!!

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=189)

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Where should NSP publish the Statement of Qualification?

[Where should NSP publish the Statement of Qualification?](#) Simulation Forum: Administrator 10/21/02
 [Statement of Qualification](#) Ron Shoulars 12/09/02

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Date: October 21, 2002 10:25 AM

Author: Simulation Forum: Administrator (webmasterast@faa.gov)

Subject: Where should NSP publish the Statement of Qualification?

The FAA seeks the public's opinion on where the National Simulator Program (NSP) should publish the Statement of Qualification?* The options are as follows:

(a) shared with the public on the NSP's Internet website; (b) shared only among NSP staff, FAA personnel (for example, Principal Operations Inspector (POI) or Training Center Program Manager (TCPM)) and the sponsor; or (c) shared only between NSP staff and the sponsor.

*NOTE: the Statement of Qualification consists of the following three parts:

(a) A CERTIFICATE---names the sponsor; the aircraft being simulated; the category of Flight Simulation Device (FSD); the FAA identification number; and the qualification level for the device.

(b) A CONFIGURATION LIST---outlines the aircraft configuration; types of visual, motion, or other simulator systems installed; the aircraft equipment being simulated; alternative configurations available for engines, instrumentation, and other equipment; and includes the date each above item was qualified.

(c) QUALIFICATIONS/RESTRICTIONS TO QUALIFICATIONS LIST---lists the flight tasks flown by the sponsor (or the sponsor's representative) in preparation for the sponsor's request for initial evaluation (see § 60.15). It also lists and describes the flight tasks and the FSD systems for which qualification is or is not originally sought and is or is not granted.

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Date: December 09, 2002 04:53 PM





Author: Ron Shoulars (ron.shoulars@aa.com)

Subject: Statement of Qualification

It still remains unclear as to who will be reading the Statement of Qualification. My gut feeling is that having it posted "in or adjacent" to the FSD will make it just a "dust collector". Instructors on a routine basis will simply ignore it. I suggest that a "Master" Statement of Qualification be maintained in the MQTG and a copy be provided to each user. It would then be up to that user to get his POI/TPAA to approve what he can use the sim for.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=194)

Your opinion on the format of Appendix A thru D.

	Your opinion on the format of Appendix A thru D.	Simulation Forum: Administrator	10/21/02
	Appendicies	Michael Brown	12/02/02
	Appendix Format	Patrick T. Cleary	12/03/02
	Why Part of the Rule?	Ron Shoulars	12/09/02

Date: October 21, 2002 10:20 AM

Author: Simulation Forum: Administrator (webmasterast@faa.gov)

Subject: Your opinion on the format of Appendix A thru D.

The FAA seeks the public's opinion on the format of the Part 60 appendices "A" through "D." Specifically, does this format aid the reader in determining the context of the material being read (i.e., awareness that the text is rule language, additional requirements, or information)? If not, what are your recommendations for modifying the format?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=30)

Date: December 02, 2002 01:52 PM

Author: Michael Brown (michael.d.brown@ual.com)

Subject: Appendicies

Remove the restatement of the rule language from the QPSs, there is too much danger of error between tht rule language and the repeated rule language.

Consider creating a separate QPS for the required quality program with added attachments such as the SQAP job aids.

If the QPS revision process works as envisioned, it will be of tremendous benefit to all.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=66)

Date: December 03, 2002 03:21 PM


Author: Patrick T. Cleary (patrick.cleary@nwa.com)

Subject: Appendix Format

1)I agree with Michael (UAL) that the repetition of the FAR language in the individual appendix may lead to confusion due to errors or omissions. 2)Can you explain why the QPS sections need to be

included in the FAR 60 at all. As a suggestion, why not model the QPS similar to the Practical Test Standards for pilot certification utilized under FAR 61? 3)Regulatory requirements should not be included in the appedix at all, they should reside within the body of the FAR. Can the QPS Appendix(s) be re-written so only "procedures and criteria" (see QPS definition) are contained within the QPS, and Requirements are contained within the FAR?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=75)

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Date: December 09, 2002 05:01 PM

Author: Ron Shoulars (ron.shoulars@aa.com)

Subject: Why Part of the Rule?

I have no objection to the idea of a simulator RULE. As the rule is presently configured large operators will spend the rest of their careers trying to get all the appropriate "i's" dotte and "t's" crossed. What is wrong with having a rule that defers to use of the appropriate Advisory Circular. That way maybe we could get around the problem of inventing a new procedure to correct the QPS documents. For sure the current format is somewhat difficult to follow.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=195)

Opinion on use of the Internet as source of communication.

 [Opinion on use of the Internet as a source of communication.](#) Simulation Forum: Administrator 10/21/02

 [Use of the Internet -](#) Steven R. Shepherd 12/12/02

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Date: October 21, 2002 10:31 AM

Author: Simulation Forum: Administrator (webmasterast@faa.gov)

Subject: Opinion on use of the Internet as a source of communication.

The FAA seeks the public's opinion on the effectiveness of using an Internet website (to discuss aspects of flight simulation device evaluation and qualification and explain National Simulator Program (NSP) policy and/or the proposals and suggestions for alteration of those policies). Do you have additional suggestions on how FAA's communication with the aviation industry and the public in general may be promoted through this or similar media?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=40)

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Date: December 12, 2002 09:14 AM

Author: Steven R. Shepherd (steve.shepherd@nwa.com)

Subject: Use of the Internet -

The shared voice of the internet is a excellent method of sharing ideas and opinions. Additional features such as "private replies" may enhance the communication process. Email links and 'instant messages' may also afford improved communications. A "phonebook" of email address would also be advantageous. This database could easily facilitate instant communication to those in the industry who wish to participate in it.

With regulatory agencies such as the FAA, opinions stated in forums such as these, can be misconstrued as rulings. Caution must be exercised to ensure what is said is differentiated between rulings and opinions.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=225)

Identification of your affiliation.

 Identification of your affiliation.	Simulation Forum: Administrator	10/21/02
 Affiliation	Charles Hobbs	12/02/02
 Affiliation	Steven R. Shepherd	12/02/02
 Affiliation	Jugal Saini	12/02/02
 (a) Ailine or Training Center- Northwest	Patrick T. Cleary	12/05/02
Airlines...		
 (b) Pilots or Pilot Organizations...	Lance Nuckolls	12/09/02
 Affiliation	Michael Brown	12/02/02
 Affiliation	Randy Schwellinger	12/04/02
 Affiliation	Alex Marodi	12/04/02
 Affiliation	Ron Shoulars	12/04/02
 Affiliation	shawn goodfellow	12/05/02
 CAE SimuFlite	Philip A. Leberta	12/06/02
 (a) Airlines or Training Centers - Continental	Joseph Dunovsky	12/06/02
Airlines...		
 Affiliation	Nidal Sammur	12/10/02
 d) Airplane Manufacturers - Boeing...	Robert A Curnutt	12/13/02

Date: October 21, 2002 10:34 AM

Author: Simulation Forum: Administrator (webmasterast@faa.gov)

Subject: Indentification of your affiliation.

Please identify which affiliation you are associated with.

NOTE: Select one of the following categories:

[for convenience in replying, you may enter alphabet character only]

(a) Airlines or Training Centers

(b) Pilots or Pilot Organizations

(c) Simulator or FTD Manufacturers

(d) Airplane Manufacturers

- (e) Academic Institutions
- (f) U.S. Agencies (such as NASA, NTSB, Customs, etc.)
- (g) U.S. or Foreign Military
- (h) Foreign Regulatory Authorities
- (i) Other

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Date: December 02, 2002 11:53 AM

Author: Charles Hobbs (Chuck_Hobbs@usairways.com)

Subject: Affiliation

(a) Airlines or Training Centers

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Date: December 02, 2002 01:04 PM

Author: Steven R. Shepherd (steve.shepherd@nwa.com)

Subject: Affiliation

(a) Airlines or Training Centers -Northwest Airlines

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=61)

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Date: December 02, 2002 02:39 PM

Author: Jugal Saini (jugal.saini@nwa.com)

Subject: Affiliation

(a) -- Northwest Airlines

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Date: December 05, 2002 01:02 PM

Author: Patrick T. Cleary (patrick.cleary@nwa.com)

(a) Ailine or Training Center- Northwest Airlines

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Date: December 09, 2002 12:55 PM

Author: Lance Nuckolls (lance.nuckolls@aopa.org)

(b) Pilots or Pilot Organizations

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Date: December 02, 2002 01:39 PM

Author: Michael Brown (michael.d.brown@ual.com)

Subject: Affiliation

(a) Airlines or Training Centers--UAL

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Date: December 04, 2002 09:38 AM

Author: Randy Schwellinger (rschwellinger@atlasair.com)

Subject: Affiliation

(a) Airlines or Training Centers

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Date: December 04, 2002 10:53 AM

Author: Alex Marodi (amarodi@usairways.com)

Subject: Affiliation

(a) Airlines or Training Centers--US Airways

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Date: December 04, 2002 08:40 PM

Author: Ron Shoulars (ron.shoulars@aa.com)

Subject: Affiliation

(a) Airlines and Training Centers

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Date: December 05, 2002 02:34 PM

Author: shawn goodfellow (shawn.goodfellow@cae.com)

Subject: Affiliation

Airline or Training Centers - CAE Aviation Training

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Date: December 06, 2002 06:07 PM

Author: Philip A. Leberta (phil.leberta@cae.com)

Subject: CAE SimuFlite

A). Airlines or Training Centers

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Date: December 06, 2002 11:56 PM

Author: Joseph Dunovsky (jdunov@coair.com)

(a) Airlines or Training Centers - Continental Airlines

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Date: December 10, 2002 07:12 PM

Author: Nidal Sammur (nidals@ssd.fsi.com)

Subject: Affiliation

(c) Simulator Manufacturer

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Date: December 13, 2002 03:18 PM

Author: Robert A Curnutt (robert.a.curnutt@boeing.com)

d) Airplane Manufacturers - Boeing

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=277)

Recommendations for modifying the definition of terms.

	Recommendations for modifying the definition of terms	Simulation Forum: Administrator	10/21/02
	60.3 Definitions QTG	Jugal Saini	12/04/02
	60.3 Definitions	Jugal Saini	12/04/02
	60.3 Definitions	Jugal Saini	12/04/02
	Types of Evaluation	Michael Brown	12/10/02
	Definition of Inspection	Jugal Saini	12/11/02
	Definition of "Functions"	Michael Brown	12/13/02

Date: October 21, 2002 10:22 AM

Author: Simulation Forum: Administrator (webmasterast@faa.gov)

Subject: Recommendations for modifying the definition of terms

The FAA seeks the public's recommendations for additions, modifications, and/or deletions to the definitions of terms used in the proposed rule (as found in the dedicated section of the rule and the dedicated attachment in each appendix to the rule). The recommendations we are seeking are strictly to make the proposed rule clearer.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=31)

Date: December 04, 2002 04:51 PM

Author: Jugal Saini (jugal.saini@nwa.com)

Subject: 60.3 Definitions QTG

Qualification Test Guide (QTG)- The primary reference document used for initial evaluation of an aircraft FSD. It contains test procedures, test results, performance or demonstration results, statements of compliance and capability, the configuration of the aircraft simulated, approved objective data and other information for the evaluator to assess the FSD against the applicable regulatory criteria.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=119)

Date: December 04, 2002 05:10 PM

Author: Jugal Saini (jugal.saini@nwa.com)

Subject: 60.3 Definitions

Master Qualification Test Guide(MQTG) The FAA-approved Qualification Test Guide with the addition of the FAA-witnessed test, performance, or demonstration results, applicable to each individual FSD. MQTG is the reference document for subsequent evaluations.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=120)

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Date: December 04, 2002 05:14 PM

Author: Jugal Saini (jugal.saini@nwa.com)

Subject: 60.3 Definitions

Additional definition ---- Special Evaluation - It would be an evaluation conducted at the request of the TPAA or as a result of comments received from users of the FSD that, upon analysis and confirmation, might cause a question as to the continued qualification or use of the simulator.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=121)

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Date: December 10, 2002 04:55 PM

Author: Michael Brown (michael.d.brown@ual.com)

Subject: Types of Evaluation

Both the current and proposed ICAO document define three types of FSD evaluations: initial, recurrent, and special (see paragraph 1.9, Types of Evaluations). These types, as defined by ICAO, should be included in section 60.3 and used appropriately throughout this Part.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=210)

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Date: December 11, 2002 04:26 PM

Author: Jugal Saini (jugal.saini@nwa.com)

Subject: Definition of Inspection

Inspection, as used in paragraph 60.19,(a)(1), should be defined in Attachment 4 of QPS Appendix.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=221)

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Date: December 13, 2002 03:57 PM

Author: Michael Brown (michael.d.brown@ual.com)

Subject: Definition of "Functions"

Please define the word "functions" as it is used in 60.13(a) and 60.23(a)(2).

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=289)

Opinion on practicability of current list of objective tests.

	Opinion on practicability of current list of objective tests.	Simulation Forum: Administrator	10/21/02
	Opinion on practicability of current list of objective tests.	Michael Brown	12/02/02
	opinion on practicality of proposed tests	Joe DePaola	12/09/02
	Motion Requirements	Nidal Sammur	12/10/02
	Page 60322 - 3.i.(2) Latency	Stephane Clement	12/13/02
	Page 60344 & 60345 - 3.a.,b.,c. & d.	Stephane Clement	12/13/02

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Date: October 21, 2002 10:28 AM

Author: Simulation Forum: Administrator (webmasterast@faa.gov)

Subject: Opinion on practicability of current list of objective tests.

The FAA seeks the public's opinion on whether the current list of objective tests is practicable and viable and on whether this list may be modified by either reducing or expanding the number of objective tests. The resulting list of tests must not compromise the overall objective review of the performance and handling of the simulator in comparison to the simulated airplane.

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Date: December 02, 2002 01:46 PM

Author: Michael Brown (michael.d.brown@ual.com)

Subject: Opinion on practicability of current list of objective tests.

The list of airplane simulator/flight training device tests should match (for Level D) or be a subset (Levels 5-C) of the ICAO Manual of Criteria for the Qualification of Flight Simulators, 2nd edition. (See JAR-STD 1A draft) Where possible, the NSPM should replace the Part 60 proposed tests with those from ICAO.

The NSPM should consider the addition of a section within Part 60 similar to FAR 142.9, "Deviations or Waivers" that could be invoked to allow the use of the ICAO tests until Part 60 can be changed to include all ICAO tests.

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Date: December 09, 2002 10:27 PM

Author: Joe DePaola (jadtx@attbi.com)

Subject: opinion on practicality of proposed tests

Suggest using the tests described in the version of Draft 120-40C that closely matches ICAO and the version of JAR-STD1A that is current as of this date.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=196)

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Date: December 10, 2002 07:30 PM

Author: Nidal Sammur (nidals@ssd.fsi.com)

Subject: Motion Requirements

Could it possible to provide us with a list of references that justify the motion envelope requirements (including excursions, velocities and accelerations)?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=213)

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Date: December 13, 2002 04:24 PM

Author: Stephane Clement (stephane.clement@cae.com)

Subject: Page 60322 - 3.i.(2) Latency

In section 3.i.(2), it is said that "as an alternative to the Latency requirement, a transport delay demonstration may be used (...)". However, in the Additional details column, it is written that "the sponsor must also demonstrate the latency of the simulator with respect to that of the aircraft (...)".

Could you please explain the rationale, why the latency has been added as a required test? The transport delay test was created because the latency test was very difficult to interpret. CAE takes great pride in doing a valid transport delay test that can be clearly demonstrated and explained in great depth. Some clarification might be required to explain what is a valid transport delay test, but adding a latency test is probably not the best approach, since it is very often inconclusive.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=294)

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Date: December 13, 2002 04:30 PM

Author: Stephane Clement (stephane.clement@cae.com)

Subject: Page 60344 & 60345 - 3.a.,b.,c. & d.

Could you please explain what is the rationale for adding these tests with these tolerances? CAE believes that very few simulators currently in commercial use can meet these requirements.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=295)

Do you need clarification of the proposed rule?


























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↳  Due to the fact that this test, originally located in the ob...	Ed Cook	12/17/02
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↳  Yes, this was intentional....	Ed Cook	12/17/02

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↳  You are correct in your observation and this was not the int...	Ed Cook	12/17/02
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↳  Technically, you are correct -- specifically, the referenced...	Ed Cook	12/17/02
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↳  These factors were determined by an FAA/Industry working	Ed Cook	12/17/02
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Date: October 21, 2002 10:19 AM

Author: Simulation Forums: Administrator (webmasterast@faa.gov)

Subject: Do you need clarification of the proposed rule?

The FAA would like to assist any reader who may have had difficulty understanding the proposed rule. If you need clarification on the proposed rule (in general or in a specific section), please describe what you would like clarified here.

NOTE: We will exert every effort to post our reply below your description in as short a time as possible.

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Date: December 04, 2002 03:08 PM

Author: Steven R. Shepherd (steve.shepherd@nwa.com)

Subject: PART 60 vs Part 121

Should not Part 60 NPRM be published simultaneously with NPRM after rewrite of Part 121 Subparts N and O?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=98)

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Date: December 06, 2002 11:53 AM

Author: Ed Cook

Subject: Genesis of the current Part 60 NPRM

The original plan was to do exactly as you point out in your question. However, due to the size of the efforts involved, it was decided to work on the Part 60 project until it was completed. This was done. However, once work was begun in earnest on the re-write of Part 121, subparts N and O, we recognized that it would probably be quite some time until that work was finished. It was decided by the FAA that it would not be necessary to delay publishing the Part 60 NPRM (and finalizing that portion of the project in accordance with the requirements for rulemaking) until a yet-to-be-determined time was expended in completing the other sections of the original effort. The now-two projects are related to one another, naturally. However, they are not inter-dependent on one another.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=154)

Date: December 04, 2002 03:11 PM

Author: Steven R. Shepherd (steve.shepherd@nwa.com)

60.5(a)- Could the sponsor use the FSD during the period in which sponsor's application for approval of the QA program is under review by the NSPM?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=99)

Date: December 06, 2002 01:39 PM

Author: Ed Cook

Subject: USe of FSD while QA program being reviewed

It is the intent of the FAA that an FSD not be used outside of an approved Quality Assurance (QA) program as set out in the Part 60 NPRM, Section 60.5; and we recognize that initially the QA programs may not be as complete or as functional as we would like. However, we should point out several things that are important to note in this area:

- 1) Initial QA programs not as complete or as functional as we may desire would not necessarily prevent the process from moving forward – making appropriate modifications to the program when and where necessary.
- 2) An applicant for a new operating certificate (under part 119) or a training center certificate (under part 141 or 142) or a Flight Engineer training program approval (under Part 63, Appendix 3) would be required to have an approved QA program, just as they would be required to have an approved training program, approved manuals and checklists, etc. prior to the issuance of the operating or training center certificate.
- 3) It is not beyond the realm of possibilities that, under appropriate circumstances (e.g., meaningful progress was being made, management completely committed, adequate funding appropriated, etc.) the NSPM could issue "temporary" approval of a submitted program – even though additional work might be necessary to develop a QA program that would meet the goals we have established.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=158)

Date: December 08, 2002 07:23 AM

Author: Patrick T. Cleary (patrick.cleary@nwa.com)

Subject: QA Program Approval/Audit

- 1) Will the FAA approve an operators simulator QA program prior to the effective date

of the rule (FAR 60). 2)IF a QA program is approved by the FAA prior to the effective date of the rule, will that approval automatically satisfy the requirement for the establishment of a QA program within the six month window proposed under the rule? 3)Have any applications for approval of a QA program been submitted and if so, how long did the approval process take? 4)Have any applications for approval of a QA program been denied, if so, what is the percentage of acceptance/rejection. 5)What training will NSP QA auditors receive in preparation for QA program audits, and when might that training be completed?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=175)

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Date: December 10, 2002 11:40 AM

Author: Ed Cook

Subject: QA Audit Status

Due to the number of imbedded questions, we'll repeat each question part and answer that part.

Question: 1)Will the FAA approve an operator's simulator QA program prior to the effective date of the rule (FAR 60).

Answer: Yes, we will review and, if appropriate, approve a sponsor's QA program in accordance with the voluntary program we have outlined, even if this predates the current Part 60 NPRM becoming a final rule.

Question: 2) If a QA program is approved by the FAA prior to the effective date of the rule, will that approval automatically satisfy the requirement for the establishment of a QA program within the six month window proposed under the rule?

Answer: Yes, reserving any changes that may be necessary because of changes to the Part 60 NPRM wording regarding QA programs as a result of comments received by the public during the currently open comment period.

Question: 3) Have any applications for approval of a QA program been submitted and if so, how long did the approval process take?

Answer: Since the inception of the voluntary QA program was first discussed, we have had 4 submissions to register a QA program. These programs have been held for further action until the NSP has completed the training for our own staff; until the development of the QA program for the FAA's B-727 simulator at the FAA Academy in Oklahoma City has been completed; and until there has been a chance for the NSP staff to audit the Academy's QA program.

Question: 4) Have any applications for approval of a QA program been denied,

if so, what is the percentage of acceptance/rejection.

Answer: No requests for QA program have been denied.

Question: 5) What training will NSP QA auditors receive in preparation for QA program audits, and when might that training be completed?

Answer: QA Auditor Training for the NSP staff has been completed and the development of the FAA Academy's B-727 QA program is at the "completed" stage – however, we understand that some final adjustments may be in order. At this time, we expect that the NSP Audit of the Academy's B-727 QA program will take place in the first quarter of Calendar year 2003. During the audit of the Academy's B-727, and perhaps during the audit of the first few sponsor's QA programs, we have made arrangements to be accompanied by representatives of the company with whom we have contracted for QA Auditor training.

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Date: December 04, 2002 03:13 PM

Author: Steven R. Shepherd (steve.shepherd@nwa.com)

Subject: 60.5(c) Definitions

Needs clarification on definition of "adequately". If intent is to use SQAP-2000, Rev 4.6, Job Aid #2 as criteria for assessment, Job Aid #2 must be attached to FAR 60 as an appendix.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=100)

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Date: December 06, 2002 02:15 PM

Author: Ed Cook

Subject: Clarification of "adequate" Re: QA programs

During the development of the NPRM, we were of the opinion that the intent of Section 60.5 (c) would not be changed by including or excluding the word "adequately." By including the term, we intended to provide for a range of circumstances and/or methods in being able to meet the sliding scale of QA program accomplishments we have highlighted. The design was that the NPRM references to QA programs would move from "practice to rule;" i.e., to codify into regulatory requirements that which we had been accomplishing under a voluntary scheme. It was also the FAA's intent that any job aid used in evaluating a QA program not be different from what we have provided in the recent past (i.e., via the NSP Website). It continues as our intent to provide to the public the material for which the sponsors will be held responsible as well as the material we will use in conducting our evaluations and audits. If there are those who have suggestions for modification of the

language that would better convey the intent as described above, we suggest you make those recommendations in accordance with the instructions contained in the NRPM under the "Comments Invited" section.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=159)

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Date: December 04, 2002 03:18 PM

Author: Steven R. Shepherd (steve.shepherd@nwa.com)

Subject: 60.13(a) - Evaluation

Clarification -- Does "evaluation" mentioned above mean an initial evaluation and a recurrent evaluation? Does "all data" mentioned above mean data specific to QTG tests or data that will include aircraft system changes too?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=101)

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Date: December 06, 2002 02:38 PM

Author: Ed Cook

Subject: Definition clarification....

Regarding your question on the definition of "evaluation;" please see the NPRM, section 60.3, Definitions, for a definition of "evaluation."

Regarding your question on what is meant by "all data" in the section 60.13 (c) citation, please see our posts on Commonality of Threads in FSD Modifications, and Commonality of Threads in FSD Modifications, Part II to see if the material there answers your questions. If that material does not address your concerns, please post a question accordingly.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=161)

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Date: December 10, 2002 01:56 PM

Author: Steven R. Shepherd (steve.shepherd@nwa.com)

Subject: page 60304 -60.13 (a) "all data developed.."

Reference page 60304 60.13 (a) Inclusive words such as "all data" when used in a rule can only be interrupted one way. Currently when we submit flight test data we only submit pertinent data to a given test. With the way it is written now, does the FAA anticipate receiving the entire data package, that generally comes with a flight test package?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=203)

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Date: December 10, 2002 03:01 PM

Author: Ed Cook

Subject: Concern expressed for "all data"

We recognize the nature of the concern expressed in the use of the term "all" in circumstances such as these. It was the intent of the FAA to express a need for being able to examine all of the data related to the appropriate test(s) when a change is made to performance, handling qualities, functions, or other characteristics in order to facilitate an adequate comparison between the FSD and the aircraft. If there are those who have suggestions for modification of the language that would better convey the intent as described, we suggest you make those recommendations in accordance with the instructions contained in the NPRM under the "Comments Invited" section.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=205)

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Date: December 04, 2002 03:22 PM

Author: Steven R. Shepherd (steve.shepherd@nwa.com)

Subject: 60.15(b)(5)(iii) definitions -performance demonstrations

Clarification -- What are performance demonstrations? Does it mean to include only items g – Brake and h – Windshear of Appendix A Attachment 2 Table of Objective Tests?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=102)

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Date: December 05, 2002 04:13 PM

Author: Ed Cook

Subject: What are performance demonstrations....

Not to sound redundant, but performance demonstrations are demonstrations of performance of the FSD. As you correctly point out, references in the Attachment 2 document for Airplane Flight Simulators does set out requirements under the "Test Details" column that include a reference to "...demonstration(s) must show..." for Brake Fade; and under the "Test" Column for Windshear there is the requirement to "Demonstrate Windshear Models." Additionally, in each of the QPS Appendices, Attachment 1, there are comments under the "Additional Details" column of the chart that make a similar requirement. Reading through Attachment 1, Test Details, you will find many statements like, "...performance must be recorded for ... and the results made part of the QTG;" or "A demonstration of ... is

required for initial and recurrent evaluations."

The collective descriptor chosen for these demonstrations and performance recordings is "performance demonstrations;" i.e., demonstrations of the FSD performance.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=146)

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Date: December 04, 2002 03:27 PM

Author: Steven R. Shepherd (steve.shepherd@nwa.com)

Subject: 60.15(c)(1) change notification

Clarification --- How would sponsor know when changes to QPS are made based on Advisory Committee recommendations?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=103)

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Date: December 05, 2002 04:22 PM

Author: Ed Cook

Subject: QPS change notification

First, let me quote the answer we provided earlier regarding the QPS revision process.

The FAA is currently developing a process for revising that portion of the content of the Qualification Performance Standards (QPS) documents (i.e., the four appendices to Part 60) referred to as "QPS Requirements." The FAA is committed to working together with industry to propose changes to the "QPS Requirements" once Part 60, including the QPS appendices, becomes effective. The approach we are considering is one we have successfully used before. We envision receiving industry input in a controlled environment, with specific delivery dates for resulting recommendations.

In addition, the FAA plans to streamline the process for making most technical changes to the "QPS Requirements" by delegating authority for final review and issuance to an appropriate level within the FAA's Regulation and Certification offices. The FAA believes that the delegation will result in more timely responses to incident/accident data and advances in aircraft or simulation technology.

Second, let me point out that no revision to the QPS would be made without first providing notice in the U.S. Federal Register and an allowance of time made for the general public to review the proposal and make comments prior to its adoption. Any such notice would also be pointed to by reference to the NSP Website, much as we have done regarding this NPRM.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=148)

Date: December 04, 2002 03:29 PM

Author: Steven R. Shepherd (steve.shepherd@nwa.com)

Subject: 60.15(g)

Clarification --- What is the criteria used for passing?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=104)

Date: December 05, 2002 04:39 PM

Author: Ed Cook

Subject: FSD "pass" requirements

The reason for the Part 60 NPRM is to publish the criteria required for obtaining a qualification for a Flight Simulation Device (FSD). The FSD will have "passed" when:

- 1) the regulatory requirements outlined in the proposed part 60 rule language have been met;
- 2) the additional regulatory requirements (QPS Requirements) set out in each of the appropriate QPS appendices have been met;
- 3) the FSD has been determined to meet the requirements set out in attachment 1 (including the required performance demonstrations);
- 4) the FSD has been determined to have passed all the required objective tests set out in attachment 2 – as determined by an NSP review of the QTG document and an NSP on-site evaluation of a sampling of those tests;
- 5) the FSD has been determined to pass all the subjective tests set out in attachment 3 – as determined by an NSP understanding that the sponsor's designated pilot(s) has(have) flown the FSD through all the tasks for which it will be qualified and an NSP on-site evaluation of a sampling of those tasks; and
- 6) any additional requirements that may be appropriate for the subject FSD as outlined in the part 60 proposed rule language and the appropriate QPS appendix; e.g., compliance with all the appropriate sections of Attachment 1 to Appendix A if the airplane flight simulator is to be qualified for low altitude windshear flight training.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=149)

Date: December 06, 2002 12:15 PM

Author: Patrick T. Cleary (patrick.cleary@nwa.com)

Subject: 60.15 (g)

Please clarify if a quantitative threshold exists, predicated on the number of 'open' discrepancies either from objective or subjective testing at the end of a scheduled evaluation for not issuing a State of Qualification.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=156)

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Date: December 09, 2002 12:33 PM

Author: Ed Cook

Subject: No quantity threshold for discrepancies.

There is no predetermined "quantity threshold" for a given number of discrepancies encountered during an initial FSD evaluation that would prevent a Statement of Qualification from being issued. The evaluating inspector will make a judgement regarding both the number of discrepancies noted and the nature of each of those discrepancies in making a determination as to whether or not we should conclude that the FSD, in its then-current condition, warrants the issuance of the Statement of Qualification and our concurrence that it should be approved to enter training, testing, and/or checking service. We must be mindful of the fact that our conducting the evaluation is due to the sponsor's indication that the FSD is ready to start in that service and our qualification would confirm that indication. Both parties must continually be aware of these factors and, together, avoid putting an FSD into that service when either the number of discrepancies or the nature of any discrepancy should prevent such approval.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=185)

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Date: December 04, 2002 03:31 PM

Author: Steven R. Shepherd (steve.shepherd@nwa.com)

Subject: 60.15(h)

Clarification --- Must the results of all tests, included in QTG and FAA witnessed, be signed by the FAA evaluator.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=107)

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Date: December 06, 2002 03:09 PM

Author: Ed Cook

Subject: Test Results being signed...

The FAA evaluator signs the results of those tests he/she has witnessed as part of the initial, on-site evaluation. It is these tests included in the QTG that make that document the Master QTG.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=165)

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Date: December 07, 2002 12:46 PM

Author: Patrick T. Cleary (patrick.cleary@nwa.com)

Subject: Signing of QTG Tests

Please clarify how formally submitted QTG tests that are not selected to be re-run during the on site Initial Qualification testing become baselined as FAA accepted/approved and incorporated into the MQTG.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=174)

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Date: December 09, 2002 12:15 PM

Author: Ed Cook

Subject: How QTG contents become MQTG contents.

When the sponsor "formally submits" the QTG, containing all of the tests and test results referenced in the current standard, it is an acknowledgement that the submitted tests/test results verify that the FSD meets those standards and, in the opinion of the sponsor, is ready to be used in the sponsor's program for training, testing, and/or checking of flight crewmembers. It is on this basis that the NSP staff members (pilots and engineer) actually travel to the FSD site to conduct the initial evaluation. This is the reason that all the effort is expended by the NSP staff to review the QTG contents and for our asking for explanations, re-testing, etc. prior to our conduct of the on-site evaluation. When the FAA-witnessed tests are conducted, signed, and placed into the QTG, that document then becomes the Master QTG.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=184)

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Date: December 04, 2002 03:35 PM

Author: Steven R. Shepherd (steve.shepherd@nwa.com)

Subject: rule Language in QPS

Since the the rule Language in QPS Appendices is so confusing, some paragraphs missing, and labels are mismatched, should it not be taken out?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=108)

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Date: December 06, 2002 12:03 PM

Author: Ed Cook

Subject: Paraphrased Rule Language in QPS Documents

As you probably assumed, the reasoning behind having the paraphrased rule language located in each of the QPS Appendices was to provide the reader with a "single source" of information relative to the specific kinds of FSD he/she was seeking. However, the sentiment expressed in your question is not the first such expression of this thought. If there are those who have suggestions for modificatin of the language, we suggest you make those recommendations in accordance with the instructions contained in the NPRM under the "Comments Invited" section.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=155)

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Date: December 04, 2002 03:40 PM

Author: Steven R. Shepherd (steve.shepherd@nwa.com)

Subject: 60.5 Rule Language (Page 60311)

Clarification on para d and e – Is management representative mentioned in para (d), one and the same as mentioned in para (e)? There is confusion as to whom the MR is in(e) with regards to the MR in paragraph(d).

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=109)

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Date: December 06, 2002 02:41 PM

Author: Ed Cook

Subject: Management Representative (MR)

The management representative (MR) referred to in section 60.5(d) of the rule language is the same MR referred to in the QPS Requirements, subparagraph (e).

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=162)

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Date: December 04, 2002 03:43 PM

Author: Steven R. Shepherd (steve.shepherd@nwa.com)

Subject: 60.5 Rule Language (Page 60312) para. (g)

Will the FAA evaluate the QA program with each recurrent simulator evaluation, if QA is applied to multiple simulators in a facility?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=110)

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Date: December 06, 2002 02:53 PM

Author: Ed Cook

Subject: QA audits in relation to FSD recurrent evaluations

While it is not necessarily a scheduled activity to accomplish a QA audit of a sponsor's QA program during each FSD recurrent evaluation, there is the potential of the evaluator's asking QA-related questions, and, if warranted, a more in-depth examination of QA functions and/or applications might be in order. The same holds true for no-notice FSD evaluations. Separate QA audits will be scheduled for examination of sponsor QA programs.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=163)

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Date: December 04, 2002 03:47 PM

Author: Steven R. Shepherd (steve.shepherd@nwa.com)

Subject: Rule Language (§ 60.9)(b)(1)(c)--daily log-book

Clarification – Is daily log-book an acceptable means for requirements in 60.9(b)(1)

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=111)

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Date: December 10, 2002 01:42 PM

Author: Ed Cook

Subject: Acceptable Methods for Accepting Comments

While it was not necessarily envisioned that the mechanism chosen would be the one that would also record discrepancies noted in the FSD itself, if there were a way that these discrepancies and the other comments generated in accordance with proposed Section 60.9 (b) could be segregated, we think that the daily log book might be an acceptable way of meeting this requirement.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=202)

Date: December 04, 2002 03:50 PM

Author: Steven R. Shepherd (steve.shepherd@nwa.com)

Subject: Rule Language (60.11) (e) Pg 60313

Clarification for simulator use for peak demands in relationship to this paragraph.

"e. Only those simulators that are used by a certificate holder (as defined for use in Part 60 and this QPS appendix) will be evaluated by the NSPM. However, other simulator evaluations may be conducted on a case-by-case basis as the Administrator deems appropriate, but only in accordance with applicable agreements.'

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=112)

Date: December 06, 2002 12:35 PM

Author: Ed Cook

Subject: Peak Use Demands of FSDs

We are not exactly sure of the thrust of your question. However, we believe it may be regarding the NSPM's intent to evaluate/qualify an FSD for a sponsor when the intended use of that FSD by that sponsor is only for a limited time period to cover peak training, testing, and/or checking needs typically encountered when a sponsor is adding a new aircraft type to the current fleet of aircraft.

As most are aware, the NSP policy has been that, as an FSD was needed to accomplish required training, testing, and/or checking, we evaluate (and qualify when able) the FSD involved in each such request – regardless of the location of the FSD. Equally true, the NSP policy has been that, when requested to evaluate and qualify an FSD for "just-in-case" purposes, we have denied such requests. The intent of this particular paragraph (located in the QPS Requirements following the Part 60 regulatory language for FSD Use, Section 60.11) was to clearly establish our "just-in-case" policy in rule language (here, in "QPS Requirements") and, when read in conjunction with the Sponsor Qualification Requirements of Section 60, subparagraph (c)(1) and (2), establishes, in regulation, the continued policy of the NSP to evaluate and qualify (when able) those FSDs required to meet peak training,, testing, and/or checking requirements.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=157)

Date: December 04, 2002 03:52 PM

Author: Steven R. Shepherd (steve.shepherd@nwa.com)

Subject: Begin Rule Language (§ 60.13)(a)--evaluation

Clarification -- Does "evaluation" mentioned above mean an initial evaluation and a recurrent evaluation?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=113)

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Date: December 06, 2002 02:59 PM

Author: Ed Cook

Please see our answer to the question you posed on December 04, 2002 03:18 PM with the subject of 60.13(a) - Evaluation, and post an additional question if that does not address your concerns here.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=164)

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Date: December 04, 2002 03:54 PM

Author: Steven R. Shepherd (steve.shepherd@nwa.com)

Subject: 60.13(g) pg.60313--Flight test data

Clarification --- Flight test data mentioned above, does it mean airplane manufacturer data or data from other flight testing sources or both? Does airplane manufacturer need to submit its flight test program to NSPM?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=114)

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Date: December 06, 2002 03:29 PM

Author: Ed Cook

Subject: Flight Test Data

The "flight test data" referred to in the cited reference means the data from any source being used to support FSD validation. As you can see from the language in the NPRM, the preferred data source for such validation data is the aircraft manufacturer. However, provisions are made for other data suppliers to provide this data. There is not a requirement for any flight test data supplier to submit their flight test plan/program prior to gathering flight test data. However, we have experience that indicates at least some of those data gathers, primarily those that do not have a satisfactory "history" of supplying such data, often provide data that is irrelevant, not properly marked, without adequate justification for selection, without adequate information regarding initial conditions, without adequate information regarding the test maneuver, etc. to name just a few errors. We have been

forced to not accept such data submissions as validation data for FSD evaluation. It is for this reason that the "Information" section, immediately following the reference you cited states, "...any necessary data and the flight test plan should be reviewed with the NSP staff well in advance of commencing the flight test."

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=166)

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Date: December 04, 2002 03:56 PM

Author: Steven R. Shepherd (steve.shepherd@nwa.com)

Subject: 60.13 (g)91)(vi)

Clarification --- What are other appropriate factors?

"(vi) Any other appropriate factors."

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=115)

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Date: December 06, 2002 03:51 PM

Author: Ed Cook

Subject: "Appropriate Factors"...

The list in the section you referenced was not intended to be an exhaustive list of factors to be recorded for each maneuver or procedure accomplished as part of a flight test to gather data for FSD validation. The "any other appropriate factors" reference was intended to address those factors that may not be present on some or perhaps a majority of tests, but are significant to a specific test or a series of specific tests, and would be provided to answer questions that might later arise or provide a more complete understanding of what and how the original test was performed. For example, the method used to determine lateral deviation from the centerline during Vmcg tests; or the calibration - and the calibration standard - for specialized instrumentation; for example, the instrumentation used for measuring that lateral deviation during Vmcg tests; the equipment used for accomplishing/recording sound tests; or the physical/geographical location for accomplishing some tests (may be significant during sound tests); etc.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=167)

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Date: December 04, 2002 03:57 PM

Author: Steven R. Shepherd (steve.shepherd@nwa.com)

Subject: 60.13(g)(2)

Clarification --- What is the definition of qualified flight test personnel?

'(2) Appropriately qualified flight test personnel.'

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=116)

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Date: December 06, 2002 04:00 PM

Author: Ed Cook

Subject: "qualified flight test personnel"

Not to sound redundant in an answer to a legitimate question, but the reference to appropriately qualified flight test personnel means persons that are qualified to perform the flight test maneuver or procedure that is to be performed.

We have seen instances where a data gatherer used a line qualified flight crew to perform a minimum unstick airspeed flight test. The results were, in one sense, merely unsatisfactory -- and in another sense, intensely riveting, almost causing loss of the aircraft and the flight crew.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=168)

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Date: December 05, 2002 02:25 PM

Author: Steven R. Shepherd (steve.shepherd@nwa.com)

Subject: Page 60314, - 60.15.i

Clarification: did you mean to state 11.b.(4) to be (5)?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=133)

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Date: December 06, 2002 04:04 PM

Author: Ed Cook

Subject: Typographical error

Yes, the reference was entered in error. The correct reference to the QTG description is not found in paragraph 11(b)(4), that discusses a list of the qualification tasks, but rather is found in the correct reference, 11(b)(5), that discusses the qualification test guide (QTG).

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=169)

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Date: December 05, 2002 02:31 PM

Author: Steven R. Shepherd (steve.shepherd@nwa.com)

Subject: page 60314, k (2)

Clarification: do you mean figure 5 not "4"?

Clarification on figure 5: Term "alloting hours", does it mean time for which the FSD is required to accomplish recurrent evaluation?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=134)

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Date: December 06, 2002 04:13 PM

Author: Ed Cook

Subject: typographical error and clarification of meaning

Yes, there is a typographical error in this reference in that the reference to "Sample Recurrent Evaluation Requirements Page" is not found in Figure 4, "Sample Statement of Qualification; Qualified/Non-Qualified Tasks," but is correctly found in Figure 5, "Sample Recurrent Evaluation Requirements Page."

Yes, the term "alloting ____ hours," as indicated in the "Sample Recurrent Evaluation Requirements Page," does mean the time that should be allocated for the accomplishment of the recurrent evaluation of the subject FSD. Note: this time includes only the FSD time, and does not include the time the evaluator may need/use in the accomplishment of other duties regarding the recurrent evaluation of an FSD.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=170)

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Date: December 05, 2002 02:34 PM

Author: Steven R. Shepherd (steve.shepherd@nwa.com)

Subject: page 60315 k (3) (i)

Clarification: what does Simulator Computer include i.e.: Host computer, PC for subsystems like TCAS or ACARS...?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=136)

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Date: December 06, 2002 04:35 PM

Author: Ed Cook

Subject: Clarification of "simulator computer"

The intent of the FAA in using this term was to move from the current practice (current standards) into rule language and be able to identify the significant factors regarding a specific FSD. However, we recognize that current FSDs often utilize, essentially, "a complex of computers" in lieu of the older term "simulator host computer." We further recognize that identification of the "simulator host computer" was significant due to the programming language of that computer and that current systems are capable of using multiple programming languages. If there are those who have suggestions for modification of the language that would better convey the intent as described above, we suggest you make our recommendations in accordance with the instructions contained in the NPRM under the "Comments Invited" section.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=171)

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Date: December 05, 2002 02:36 PM

Author: Steven R. Shepherd (steve.shepherd@nwa.com)

Subject: page 60315 item k(6)

Clarification: Did you mean the Listings of the Source data, not the data itself?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=137)

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Date: December 09, 2002 11:37 AM

Author: Ed Cook

Subject: Just listing source data is not acceptable.

No, we did not mean just a listing of the source data. The source data itself must be submitted in order to make the required comparisons. If that data is not included as part of the QTG it would have to be submitted with the QTG and a reference made, or a listing provided, in that QTG as to where the data may be found. "Over-plotting" validation data and FSD data or "co-lateral plotting" validation data and FSD data simultaneously may be assumed to be all that is required; however, the original flight test data is needed to make sure that the data that is presented in the "over-plot" or "co-lateral plot" is not altered or compromised and to prevent questions from occurring. This is not different from the existing practice of data submission.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=181)

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Date: December 05, 2002 02:40 PM

Author: Steven R. Shepherd (steve.shepherd@nwa.com)

Subject: 60315 item k910(a)

Did you mean to state- "Name of the test and the number of the test in a standard format". (with Standard number system defined.)

Please define the standard of the numbering System.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=138)

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Date: December 09, 2002 11:54 AM

Author: Ed Cook

Subject: Numbering of Tests & Standard

We are not completely sure of the question, and believe that there may have been a typographical error in the question transmission – however, we believe you are referencing the QPS Requirements in Appendix A, that follows Section 60.15 rule language in paragraph 11; specifically subparagraph 11(k)(10)(a) Name of Test; where you are asking if "Name of Test" was intended to be worded "Name of test and the number of the test in a standard format" – and further ask about the standard numbering system we would prefer....

If we are correct about the above assumptions, the simple answer to your question is, Yes. If you continue to read in the same Appendix A paragraph, when you get to subparagraph "t" (in the information section) we state that the "...the numbering system used for objective test results in the QTG should closely follow the numbering system set out in attachment 2, Simulator Objective Tests."

If there are those who have suggestions for modification of the language that would better convey the intent as described above, we suggest you make those recommendations in accordance with the instructions contained in the NPRM under the "Comments Invited" section.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=182)

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Date: December 05, 2002 02:45 PM

Author: Steven R. Shepherd (steve.shepherd@nwa.com)

Subject: 60315 item k(10)(d)

Clarification: What happens when manual procedures can not be accomplished from the cockpit?. (i.e.: A330 Data where only one spoiler panel was deflected in the Aircraft data (flight test).)

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=139)

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Date: December 10, 2002 07:54 AM

Author: Ed Cook

Subject: Manual Test Requirements

It is the intent of the FAA to require the capacity to manually accomplish all objective tests for an FSD evaluation; as it is these objective tests which compare the FSD to aircraft data. In general it is the intent of the FAA to have no difference between the requirements for manual testing of conventionally controlled airplanes and computer controlled airplanes. However, because flight testing of computer controlled airplanes and validating FSDs for these airplanes is still relatively new, limited exceptions may arise due to the design of the aircraft control systems or special flight test requirements. In such cases, it may be that an alternative FSD validation test would have to be developed.

The specific instance you cite regarding the A-330 appears to be related to a special flight test method used by the manufacturer, and the adequacy of the data is still under review between the FAA and Airbus. The Dutch roll was excited in the airplane by the extension of a spoiler panel in a manner that cannot be readily duplicated in the FSD. However, the Dutch roll can still be excited in the FSD through conventional test methods and compared with the flight test results, thereby validating the long-term response.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=197)

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Date: December 13, 2002 09:03 PM

Author: Alex Marodi (amarodi@usairways.com)

Subject: Re: Manual Test Requirements and Pg 60331, (12)(a)

The FAA states it is its intent to "require the capacity to manually accomplish all objective tests for an FSD evaluation; as it is these objective tests which compare the FSD to aircraft data. ... However, ... , due to the design of the aircraft control systems or special flight test requirements. ... it may be that an alternative FSD validation test would have to be developed." We had proposed a viable alternative test, like the alternative dutch roll test you described, but at the time, the FAA requested that it be a supplementary test to the auto-only test, not an alternative test, until new aircraft data was provided by the manufacturer.

So, has the FAA's position changed on this? In other words, does the FAA now want to retain the phrase "electronically generated inputs" (pg 60331, (12)(a)) without qualification or restriction knowing that manual testing could be increasingly precluded because, understandably, the a/c manufacturers legitimately continue to use the technique more and more when developing efficient flight test methods? Then, for example, will the burden fall on the sim mfg and sponsor to produce both an auto-only test for each flight-test POM supplemented by a conventional test, which is supported by engineering data, until the issue is resolved? Or, do we put restrictions or qualifications on the use of electronically generated inputs?

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Date: December 17, 2002 12:19 PM

Author: Ed Cook

Subject: FAA position not changed

No, the FAA's position on the specific issue has not changed. Each such issue must, necessarily, be evaluated on a case-by-case basis. There is no intent to modify the FAA's position that validation data should come from aircraft flight tests derived from flight test pilot input.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=310)

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Date: December 05, 2002 02:51 PM

Author: Steven R. Shepherd (steve.shepherd@nwa.com)

Subject: page 60314 -- 60.15(b)(5)(c)

Clarification -- What are performance demonstrations?

Need Definition

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=140)

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Date: December 09, 2002 10:08 AM

Author: Ed Cook

Subject: Please see...

Please see our answer to an above question on the same topic - the answer is titled, "What are Performance Demonstrations." If that does not answer your question, please post another question.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=178)

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Date: December 05, 2002 03:03 PM

Author: Steven R. Shepherd (steve.shepherd@nwa.com)

Subject: missing information page 60314

Why is section ((page60305) 60.15 (c) the whole section) missing from the QPS section Page

30314 rule 60.15.

need to add--"(c) Except for those FSD's previously qualified and described in § 60.17, each FSD evaluated for initial qualification must meet the standard that is in effect at the time of the evaluation. However— (1) If the FAA publishes a change to the existing standard or publishes a new standard for the evaluation for initial qualification, a sponsor may request that the NSPM apply the standard that was in effect when an FSD was ordered for delivery if the sponsor—...."from rule Language-

With that said further clarification is needed to know how would a sponsor know when changes to the QPS are made based on Advisory Committee recommendations?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=141)

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Date: December 09, 2002 10:32 AM

Author: Ed Cook

Subject: Omission and Change Awareness

In regards to the first part of your question, apparently there was an oversight error in the referenced paragraph and you have correctly pointed out the inadvertent omission of the referenced paragraph. Several questioners have asked if it might better serve the interests of the public to remove the "paraphrased rule" section from the various appendices and stand on the rule language itself. If there are those who have suggestions for modification of the language that would better convey the intent of the FAA, we suggest you make those recommendations in accordance with the instructions contained in the NPRM under the "Comments Invited" section.

In regards to the second part of your question, let me refer you to our response posted on December 5, titled "QPS Change Notification." If this does not answer the question you posed here, please post an additional question.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=179)

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Date: December 09, 2002 03:20 PM

Author: Steven R. Shepherd (steve.shepherd@nwa.com)

Subject: 60315 item 1(4)

Clarification ---- What would be acceptable means, not to obscure the reference data? (One way is to distinguish lines with spaces symbols. If this capability is not available, then what?)

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=191)

Date: December 10, 2002 08:07 AM

Author: Ed Cook

Subject: Data Presentation Methods

It is not the intent of the FAA to mandate the manner in which the data (FSD and/or validation) is presented in the chosen media (i.e., printed, transparent overlay, electronic, etc). However, regardless of the method chosen, we must necessarily be sure that both sets of data may be clearly seen -- i.e., not obscured due to the method of presentation.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=198)

Date: December 09, 2002 03:24 PM

Author: Steven R. Shepherd (steve.shepherd@nwa.com)

Subject: 60315 paragraph o

3 Clarification issues: Clarification --- At the simulator location, does it mean in the facility where simulator is installed? Clarification --- After sponsor has developed MQTG in electronic format, is he supposed to maintain a paper copy, too? Clarification --- How will the proprietary vendor data, on the electronic copy sent to NSPM, will it be secured also it is proprietary; what are the legal ramifications of distrubuting it oustide the sponsor's secure area?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=192)

Date: December 10, 2002 08:24 AM

Author: Ed Cook

Subject: Clarification of Points

Due the number of imbeded questions, I'll repeat the question and follow it with our answer.

Question: Clarification --- At the simulator location, does it mean in the facility where simulator is installed?

Answer: Yes.

Question: Clarification --- After sponsor has developed MQTG in electronic format, is he supposed to maintain a paper copy, too?

Answer: It is the desire of the FAA to find a suitable electronic format that will be compatible with all the systems used by the various interested parties (e.g., aircraft manufacturer, FSD manufacturer, vendor manufacturer, alternate data supplier, sponsor, NSP staff, etc.). In an effort separate from this NPRM several FSD manufacturers and sponsors are working with the NSP staff to develop such an acceptable format. Until such a

format is developed and all appropriate questions and concerns regarding the decided upon methodology and selected format(s) are developed and resolved it will be necessary to maintain a "hard" copy of the QTG. Depending on the resolution of the as yet unknown questions, it may be that a "hard" copy will be required in each case regardless of the electronic version's availability.

Note: The NSP has had sponsors provide electronic QTGs as tests of the compatible systems, and in each case the sponsor has submitted an accompanying "hard" copy.

Question: Clarification --- How will the proprietary vendor data, on the electronic copy sent to NSPM, will it be secured also it is proprietary; what are the legal ramifications of distributing it outside the sponsor's secure area?

Answer: The proprietary data that is part of an electronic QTG will be maintained by the NSP staff in the same manner as proprietary data presented in the traditional (hard copy) QTG has been maintained. We have been quite successful in avoiding the dissemination of any material deemed to be proprietary by its owner, even in the face of specific requests for such material under the provisions of the Freedom of Information Act.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=199)

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Date: December 09, 2002 03:32 PM

Author: Steven R. Shepherd (steve.shepherd@nwa.com)

Subject: 60315 paragraph r

3 items: Clarification --- In the above paragraph, did you mean that within ten working days after receiving the QTG, NSPM will complete its review? If QTG is found acceptable, NSPM establishes the initial evaluation date. If QTG is found unacceptable, NSPM informs the sponsor?

Clarification --- NSP web policy regarding Initial Evaluation states that "....Additionally, if all of the QTG test results are from the "on-site" location, the QTG must be submitted not later than 30 days prior to the proposed date." Should not this part, of under normal circumstances, be added to the QPS Requirements?

Clarification --- How early can an objective test be performed, to be acceptable for including in the submitted QTG?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=193)

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Date: December 10, 2002 10:56 AM

Author: Ed Cook

Subject: Paragraph 11.r. of Appendix A

Due the number of imbedded questions, I'll repeat the question and follow it with our answer.

Question: Clarification --- In the above paragraph, did you mean that within ten working days after receiving the QTG, NSPM will complete its review? If QTG is found acceptable, NSPM establishes the initial evaluation date. If QTG is found unacceptable, NSPM informs the sponsor?

Answer: No, we did not say, nor did we mean, that within 10 working days after receiving the QTG we would complete its review. What we said was that "...under normal circumstances, (we) establish a date for the initial or upgrade evaluation within ten (10) working days after determining that a complete QTG is acceptable."

The intent of the NPRM language is that once we have determined that the QTG is acceptable, we establish the evaluation date. Naturally, as we do regularly, should we find some or all of a QTG to be unacceptable we will notify the sponsor of that fact.

However, as you, and others in the industry, are acutely aware, recent years have been anything but "normal" with respect to the time during which this language was originally developed (summer of 1986, AC 120-40A). It is for this reason that the current policy of submitting the QTG a minimum of 45 days prior to the anticipated evaluation date (30 days if the tests in the QTG are accomplished at the training location) was developed. The current situation is also the reasoning behind the NPRM language that follows the language quoted above, describing the practice and the risks to the sponsor when establishing an evaluation date prior to our determination that we have a complete and satisfactory QTG.

Question: Clarification --- NSP web policy regarding Initial Evaluation states that "...Additionally, if all of the QTG test results are from the "on-site" location, the QTG must be submitted not later than 30 days prior to the proposed date." Should not this part, of under normal circumstances, be added to the QPS Requirements?

Answer: It was the original intent of the FAA, in developing this NPRM, to codify existing practices to as large a degree as logical. You are correct in your observation of existing NSP policy (as posted on the NSP Website) regarding QTG submission policies.

Question: Clarification --- How early can an objective test be performed, to be acceptable for including in the submitted QTG?

Answer: It has always been the desire of the FAA to have all objective tests completed as close to the evaluation date as possible. Typically an acceptable window for the accomplishment of these tests is 60 days prior to the expected evaluation date of the FSD. Of course, we recognize that sometimes circumstances develop that make such a window impractical to meet. An example of when such adjustment might be appropriate is when one wishes to sponsor a currently operating FSD but one that is operated by a foreign air carrier. All of the QTG tests will certainly have been run for the host country's regulatory authority some time prior to the expected date of our evaluation. Here, we would want to ensure that all the QTG tests submitted for our evaluation had been run within the 12 months preceding the anticipated evaluation date, with 1/3 of those tests re-run within the "60-days-prior" window. Certainly, we have treated, and will continue to treat unusual circumstances on a

case-by-case basis when necessary to adjust this 60-day window.

If there are those who have suggestions for modification of the language that would better convey the FAA's intent in these matters, we suggest you make those recommendations in accordance with the instructions contained in the NPRM under the "Comments Invited" section.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=200)

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Date: December 13, 2002 10:58 AM

Author: Lance Nuckolls (lance.nuckolls@aopa.org)

Subject: How Will The NPRM Impact Traditional General Aviation Operators?

Specifically, how will this NPRM impact traditional general aviation flight schools and charter operators who only train pilots in flight training devices or simulators representing aircraft generally 9,000 lbs MGTOW or less?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=251)

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Date: December 13, 2002 04:37 PM

Author: Ed Cook

Subject: traditional general aviation flight schools

The Part 60 NPRM will have essentially no impact on traditional general aviation flight schools other than the fact that they will not be able to "sponsor" a Flight Simulation Device (FSD = a flight simulator or flight training device). This NPRM addresses the requirements for FSDs and those who sponsor or use FSDs. This NPRM also changes certain sections of Part 61 of the regulations to set aside certain devices that may be approved by the Administrator (other than flight simulators or flight training devices) for the purposes indicated in those sections of Part 61 where the phrase "other device" is used. I would refer you to Pages 60512 and 60513 to view the proposed sections of Part 61 that would contain this verbiage.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=297)

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Date: December 02, 2002 11:53 AM

Author: Steven R. Shepherd (steve.shepherd@nwa.com)

Subject: FAR60 Page 60305

Reference Para.60.15 (b)(3)(iii) "For type specific FSD's, the cockpit configuration conforms to the

configuration of the aircraft make, model, and series being simulated."

What is "type specific FSD" versus say, non-type specific FSD? Does this apply only to specific Sponsors? Can this be better defined?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=59)

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Date: December 02, 2002 01:02 PM

Author: Ed Cook

Subject: Clarification of "Type Specific"

All levels of simulator (A through D) must represent a specific aircraft; identified by make, model, and series (e.g., Boeing B-737-200 or Airbus A-319-100). Also, Flight Training Device (FTD) Levels 4, 5, and 6 must represent a specific aircraft (M/M/S)- as described above.

All Flight Simulation Devices (FSD's; i.e., simulators AND flight training devices) above Level 4 are, therefore, considered to be "type specific" FSDs. Note: a Level 5 FTD may be programmed with an aerodynamic program that is specific to the aircraft type OR that represents the set of aircraft being simulated by the FTD.

FTD Levels 2 and 3 do not have to represent a specific type of aircraft. While these levels of FTD may be considered to be "non-type specific," they are generally referred to as "generic" FTD levels. These levels of FTD represent a "set of aircraft" as defined in the definitions section of the proposed rule, as opposed to an aircraft of a specific type.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=60)

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Date: December 03, 2002 07:22 AM

Author: Patrick T. Cleary (patrick.cleary@nwa.com)

Subject: Clarification of aircraft "series"

1) Please note that A320 m/m/s simulators are qualified for training A319 m/m/s crews. Does the reference to "series", utilized in the proposed FAR 1 definition for "flight simulator" require an operator to have a specific m/m/s cockpit configuration and datapackage (i.e. A319) or can an A320 m/m/s cockpit and datapackage still qualify the device for A319 crew training? 2) Will a simulator Statement of Qualification align with AC 61-89E for the issuance of pilot type certificates by "type" of aircraft simulated in lieu of specific series of aircraft within a type.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=70)

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Date: December 03, 2002 10:53 AM

Author: Ed Cook

Subject: "Series" vs "Type Rating"

The first question asked is actually two questions: the first part of which asks, Does "series" require a sponsor to have a specific make, model, and series cockpit configuration and data package? The answer is, Yes. This is not changed from current practices. The second part of the question asks, Can an A-320 make, model, and series (we assume A-320-200, etc., where the "200" is the series) cockpit and data package still qualify the device for A-319 crew training? This is a training question – more properly addressed by the Principal Operations Inspector or the Training Center Program Manager – however, historically, training, as referenced in this part of the question, has been approved along with a course of what is called "differences training."

The second question asks whether the Statement of Qualification as proposed will "align" with the type ratings issued on a pilot certificate as described in Advisory Circular (AC) 61-89E. The answer is, Yes and No. The Statement of Qualification will address the subject simulator, simulating a specific make, model, and series of aircraft. Type ratings issued on a pilot certificate do not include series of aircraft. For example: The AC 61-89E document references the Boeing "B-737" aircraft "type rating" in the Current Designation column of Appendix 2. That same appendix includes eight series (the 100, 200, 300, 400, 500, 600, 700, and 800 series) of the B-737 airplane, as listed in the Model Designation column. A pilot completing the necessary training and testing on a simulator for any of these eight series would result in the same "B-737" type rating being issued. However, a simulator for any of these eight series would be issued a Statement of Qualification that would reference the appropriate series being simulated. For example, an FSD simulating the B-737-200 aircraft may reflect "B-737-200;" or, at the option of the simulator sponsor, it may reflect "B-737-252" to indicate the specific airplane in the –200 series line operated by that sponsor.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=72)

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Date: December 02, 2002 02:09 PM

Author: Michael Brown (michael.d.brown@ual.com)

Subject: FAR 60.23 Modifications to FSDs

Is the intent of the word "modify" as it applies to this section meant to mean any change to a FSD item specified in the left column of the applicable Table of Minimum Simulator/FTD Requirements (QPS Att 1) or a change to any test specified in the applicable Table of Objective Tests (QPS Att 2)?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=67)

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Date: December 03, 2002 09:49 AM

Author: Ed Cook

Subject: The term "modify"

The intent was to incorporate current practices into rule/QPS language. The term, "modify," was intended to mean changes to both the left column of the applicable Table of Minimum Simulator/FTD Requirements (QPS Att 1) AND tests specified in the applicable Table of Objective Tests (QPS Att 2), but ONLY if the change is intended to impact flight or ground dynamics or impact performance or handling characteristics of the simulator.

What we did not intend to incorporate into this area are things like normal, routine maintenance functions (e.g., calibration of instrumentation, motion, or control loading systems or navigation data updates); changes to the training functions of the simulator (e.g., modifications to the Instructor Operating Station [including lesson plans, etc.] or malfunction operations); or changes to add or update visual models.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=71)

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Date: December 03, 2002 03:43 PM

Author: Michael Brown (michael.d.brown@ual.com)

Subject: Conflict?

Paragraph 3(c) of the Table of Minimum Simulator Requirements appears to require that ALL programming changes be made with no qualifiers to ALL, which conflicts with 60.23 and the first paragraph of the previous answer.

Is it the intent of the NSPM that a Sponsor implement within 6 months all programming changes, even those that fall outside the above definition of "modification," that are airplane-modification driven unless the NSPM gives relief? An example would be an autopilot software update that the crews will not notice and that has no effect on flight or ground handling or performance characteristics.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=79)

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Date: December 04, 2002 03:30 PM

Author: Ed Cook

Subject: We Hope Not

Yes, it is the intent that all changes that are driven by airplane modifications be implemented as indicated. Therefore, as in the example given, if the airplane manufacturer provides an update, we believe it appropriate for the sponsor to implement the update or explain why they should not have to do so. We recognize

that an acceptable explanation might be that implementation of the available change would not affect flight/ground dynamics or affect performance or handling and would be transparent to flight crewmember activities.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=105)

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Date: December 03, 2002 07:04 AM

Author: Patrick T. Cleary (patrick.cleary@nwa.com)

Subject: QPS Revision Process

Please explain the process by which the content of QPS appendices will be formally changed after the effective date of the proposed FAR.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=69)

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Date: December 04, 2002 12:20 PM

Author: Ed Cook

Subject: Revision Process

The FAA is currently developing a process for revising that portion of the content of the Qualification Performance Standards (QPS) documents (i.e., the four appendices to Part 60) referred to as "QPS Requirements." The FAA is committed to working together with industry to propose changes to the "QPS Requirements" once Part 60, including the QPS appendices, becomes effective. The approach we are considering is one we have successfully used before. We envision receiving industry input in a controlled environment, with specific delivery dates for resulting recommendations.

In addition, the FAA plans to streamline the process for making most technical changes to the "QPS Requirements" by delegating authority for final review and issuance to an appropriate level within the FAA's Regulation and Certification offices. The FAA believes that the delegation will result in more timely responses to incident/accident data and advances in aircraft or simulation technology.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=87)

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Date: December 03, 2002 03:13 PM

Author: Michael Brown (michael.d.brown@ual.com)

Subject: 60.31(a)(1) MQTG

The MQTG, by definition, is the QTG that applies to the FSD. Is it the implication of this paragraph that the Sponsor will have to keep a copy of all previous amendments to the MQTG, or does the paragraph imply that the Sponsor must keep only the current amendment?

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Date: December 04, 2002 01:17 PM

Author: Ed Cook

Subject: MQTG and Amendments

The intent is for the sponsor to maintain the MQTG in accordance with standard document revision practices (i.e., in a current status with each revision incorporated as appropriate) and should be able to be recognized as current by viewing the list of effective pages. If there are those who have suggestions for modification of the language that would clarify this intent, we suggest you make those recommendations in accordance with the instructions contained in the NPRM under the Comments Invited section.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=93)

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Date: December 03, 2002 03:20 PM

Author: Michael Brown (michael.d.brown@ual.com)

Subject: 60.31(a)(2) programming changes

This paragraph requires that a copy of all programming changes be kept.

- 1) Does the NSPM intend that the Sponsor keep a copy of the actual programming? If so, what form would be acceptable (printout of code, electronic source code, etc.)?
- 2) Is simply a record of the programming changes what is meant?
- 3) Does "all programming" refer to only programming that has been modified as defined in 60.23 and clarified in the question previously asked?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=74)

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Date: December 04, 2002 02:58 PM

Author: Ed Cook

Subject: Please See Commonality Threads for FSD Modifications

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=96)

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Date: December 03, 2002 03:22 PM

Author: Michael Brown (michael.d.brown@ual.com)

Subject: 60.31(a)(5) Hardware Changes

This paragraph requires that a record of all hardware modifications be kept.

Does "modify" in this case refer to only those instances defined in 60.23 and clarified in the previous question?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=76)

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Date: December 04, 2002 02:58 PM

Author: Ed Cook

Subject: Please See Commonality Threads for FSD Modification

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Date: December 03, 2002 03:26 PM

Author: Michael Brown (michael.d.brown@ual.com)

Subject: 60.25(c) m/m/i components

This paragraph requires that each missing, malfunctioning, or inoperative (m/m/i) component be placarded.

With a literal reading, one could infer that a FSD must be "dispatched," with m/m/i components placarded between training periods. Is it the intent of the NSPM that this maintenance activity must take place between each training period?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=77)

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Date: December 04, 2002 09:36 AM

Author: Randy Schwellinger (rschwellinger@atlasair.com)

Subject: 60.25(c)

Is the intent of the first paragraph of this section to not allow the use of the simulator for training, checking, etc. regardless of in what manner the instrument is "malfunctioning"? For instance, if a particular instrument is required to be checked during a preflight and that instrument is intermittent, out of calibration, sticking, etc., are you saying preflight can not be trained? Or, can it be trained provided the time period and placard instructions are followed?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=81)

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Date: December 04, 2002 01:06 PM

Author: Ed Cook

Subject: M/M/I Issues

The answer to the first part of the question is, No, that is not the intent. The requirement is to not use (or allow the use of) the FSD for a maneuver, procedure, or task when a component is missing, malfunctioning, or inoperative (m/m/i) when that particular component is required to be operating correctly in order to perform the maneuver, procedure, or task. The intent was to allow the continued operation of the FSD in training, testing, or checking of maneuvers, procedures, or tasks where required components were operating correctly. In the example cited, a particular instrument is required to be checked during the crewmember's cockpit preflight and that instrument is not working correctly. Can the preflight continue to be trained? Yes, but please don't stop reading. Though your Principal Operations Inspector or Training Center Program Manager is the representative of the Administrator who will decide specific training, testing, and/or checking authorizations, we believe it fair to point out that at some point in that crewmember's training, the correct preflight of this instrument would have to be accomplished – either through correction of the malfunctioning instrument, use of an alternative FSD, or some other approved differences methodology.

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Date: December 04, 2002 12:24 PM

Author: Ed Cook

Subject: Missing, Malfunctioning, Inoperative Components

The intent of this requirement is to have flight crewmembers be aware of the operability of systems/components in the FSD through two sources; the FSD logbook and appropriate placards on the inoperative system/component. It was not the FAA's intent to have the FSD "dispatched" at the beginning of each FSD use period. We recognize that the most logical time to affix appropriate placards would be during the maintenance or preflight period. We also recognize that this would most logically take place once a day, usually between scheduled daily utilization periods. If there are those who have suggestions for modification of the language that would clarify this intent, we suggest you make those recommendations in accordance with the instructions contained in the NPRM under the "Comments Invited" section.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=88)

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Date: December 03, 2002 03:29 PM

Author: Michael Brown (michael.d.brown@ual.com)

Subject: 60.19(a)(3) 7-day preflight

This paragraph requires a functional preflight each 7 calendar days.

If the FSD is preflighted at the beginning of each day of use (60.19(a)(2)), what is the purpose of this

additional requirement?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=78)

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Date: December 04, 2002 01:12 PM

Author: Ed Cook

Subject: Preflight Requirements

The requirement of Section 60.19(a)(3) for a preflight check every 7 consecutive calendar days is not a requirement levied "in addition to" the requirement of subparagraph (a)(2). If an FSD is used at least once each 7 calendar days, and the required preflight is conducted prior to its use, the requirement set out in subparagraph (a)(3) will have been satisfied. The subparagraph (a)(3) requirement is to ensure that the FSD has a preflight check conducted regularly during extended periods of non-use.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=92)

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Date: December 05, 2002 04:14 PM

Author: Michael Brown (michael.d.brown@ual.com)

Subject: 7-day preflight

What is the intent of requiring a preflight each 7 calendar days if an otherwise qualified FSD is temporarily inactive? As long as the FSD meets all other requirements of this part, shouldn't the 'preflight before use' (my words) requirement of subparagraph 60.19(a)(2) suffice to ensure a FSD is ready for use no matter how many days it has been unused? The 7 day requirement appears to require manpower for no perceived gain.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=147)

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Date: December 06, 2002 11:39 AM

Author: Ed Cook

Subject: Preflight Requirements

We recognize that the "7 consecutive calendar days" requirement is relatively frequent, but the area of concern is the period for which the FSD would be "temporarily inactive;" i.e., how long is temporary? There is an established procedure for taking an FSD out of service for extended periods (for a year or more where specific, regular "maintenance functions" are not necessarily required) and those procedures have worked well in the past. However, the focus for the language in this particular sub-paragraph was directed to those situations where the sponsor's intent is to make the FSD continually available to potential users, but is confronted with the

fact that for business, economic, or other reasons, the FSD is simply not used – and the "not used" time develops into an extended time. The intent of the FAA is to ensure that, in addition to the required, sponsor-conducted, quarterly inspections, the FSD would be maintained (i.e., appropriate systems would be "exercised" – computer, electrical, and hydraulic systems remain functional, connections do not become corroded, excessive moisture or quantities of dust do not collect, etc.) during periods of this extended inactivity. The design was to create an FSD environment in which a first-time user of the FSD, after the inactive period, would not be confronted with an inordinate number of missing, malfunctioning, or inoperative systems or equipment as a result of the inactivity. If there are those who have suggestions for modification of the language that would clarify the intent as described above, we suggest you make those recommendations in accordance with the instructions contained in the NPRM under the "Comments Invited" section.

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Date: December 03, 2002 03:52 PM

Author: Michael Brown (michael.d.brown@ual.com)

Subject: Min FSD Requirements 3.c.

Requires hardware and programming changes within 6 months of any airplane modification.

With large fleets, airplane modifications may be extended over a period of many months or several years. To which airplane does this refer? (Does "any" = first?) It is sometimes advantageous to training not to modify the FSD as soon as the first airplane is modified.

How would this requirement be levied against a training center with no aircraft? Would they be allowed to maintain a "generic" aircraft cockpit in the FSD and not have to upgrade as the customer upgrades there aircraft? Would they be required to match the cockpit configuration of the representative aircraft of each customer?

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Date: December 04, 2002 02:57 PM

Author: Ed Cook

Subject: Please See Commonality Threads for FSD Modifications

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=95)

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Date: December 04, 2002 09:50 AM

Author: Randy Schwellinger (rschwellinger@atlasair.com)

Subject: 60.35

(b).....that cannot perform satisfactorily in the following areas will no longer be qualified as a simulator.

How will the determination be made to decide whether the simulator performs satisfactorily? Subjectively, objectively, both, by meeting the current standards or those in place under the current certification?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=83)

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Date: December 05, 2002 01:04 PM

Author: Ed Cook

Subject: How the determination is made...

The determination will be made according to the standards under which the simulator was originally evaluated and qualified, including both objective and subjective tests. This does not differ from existing practices. This section of the proposed rule is to indicate that Level A simulators, not currently required to meet standards for the landing maneuver, will be required to do so after a date 2 years following the final rule publication.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=128)

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Date: December 04, 2002 10:46 AM

Author: Randy Schwellinger (rschwellinger@atlasair.com)

Subject: 60.31 (b)

(b) The FSD sponsor must keep a current record of each certificate holder using the FSD. The sponsor must provide a copy of this list to the NSPM at least semiannually.

Are you expecting us to provide a list of customers from a foreign owned and operated simulator that we "sponsor"?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=84)

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Date: December 05, 2002 01:06 PM

Author: Ed Cook

Subject: Clarification Re: Foreign Simulators

It is the intent of this section to have the NSPM have a current list of those certificate holders (airlines) who use a US-based, FAA-qualified simulator for training, testing, and/or checking activities. It was not the intent of the FAA to have a sponsor of a foreign simulator provide a list of customers of that foreign simulator operator. If there are those who have suggestions for

modification of the language that would clarify the intent as described above, we suggest you make those recommendations in accordance with the instructions contained in the NRPM under the "Comments Invited" section.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=129)

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Date: December 04, 2002 12:43 PM

Author: Randy Schwellinger (rschwellinger@atlasair.com)

Subject: 60.25(b)

Please clarify which is correct. The rule which states 7 days. Or the QPS which says 30 days.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=89)

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Date: December 05, 2002 01:08 PM

Author: Ed Cook

Subject: Correct Language

Unfortunately, an error occurred in constructing the "paraphrased rule language" contained in paragraph 18 (Operation with Missing, Malfunctioning, or Inoperative Components) of each of the QPS Appendices. Section 60.25(b) of the proposed rule correctly states "... (e)ach missing, malfunctioning, or inoperative component must be repaired or replaced within 7 calendar days unless otherwise required or authorized by the NSPM." The paraphrased rule language in the QPS appendices should reflect "7 calendar days." If there are those who have suggestions for modification of the language that would clarify the intent as described above, we suggest you make those recommendations in accordance with the instructions contained in the NRPM under the "Comments Invited" section.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=130)

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Date: December 04, 2002 12:56 PM

Author: Randy Schwellinger (rschwellinger@atlasair.com)

Subject: 60.27 (2) Loss of Qualification

Am I correct in stating if a preflight or preventative maintenance inspection is missed, or disassembly as described in paragraph(4) is done, according to this section;

I would "automatically" loose qualification and be required to query the NSPM for a determination on what actions were necessary to restore qualification.

Assuming this is an accurate statement, wouldn't we then have to void all training and checking that occurred prior to discovery and shut our simulators down until the NSPM can be reached?

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Date: December 04, 2002 04:12 PM

Author: Michael Brown (michael.d.brown@ual.com)

Subject: 60.27(4) Disassembly

Loss of qualification for disassembly.

The temporary inability to use a FSD can occur with the simple removal and replacement of a critical computer card or with more complex maintenance such as the removal and replacement of a motion jack. Both events can occur during the nightly maintenance period. How would the Sponsor return the device to service at 0600 per 60.27(b) following the maintenance activity.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=118)

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Date: December 08, 2002 06:50 PM

Author: Ed Cook

Subject: Please see answer to previous question

Your point is well made. I would refer you to the question originally asked in this part of this thread and the response to that question, entitled, "Clarification of Meaning."

If this response does not address the points you make, please feel free to post another question.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=177)

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Date: December 08, 2002 06:42 PM

Author: Ed Cook

Subject: Clarification of Meaning

Yes, you are correct in your statement. If the error was one of missing the preflight or not completing the required quarterly checks, for example, we would ask that the preflight be conducted and signed off or the quarterly check be completed and a determination made that the FSD is "fit" for use. Had training, testing, or checking taken place for a flight crewmember between the missed preflight and the conducted preflight, or between the incomplete check and the completed check, those functions would not be affected. Of course if the conducted preflight or the completed quarterly check detected that some component of the FSD should have been written up as "inoperative" and the training, testing, or checking that had taken place had required the correct operation of that component, then what had been accomplished would be called into question.

We believe the proposed rule is clear that this requirement was constructed to ensure that an FSD would not be used: 1) unless the sponsor was using it within the sponsor's FAA-approved flight training program as described in another section of the proposed rule; 2) without an appropriate preflight inspection having been accomplished within the stated times; 3) without the quarterly inspections or the recurrent evaluations having been conducted as outlined; 4) during times of major disassembly; or 5) when the MQTG was missing and was not replaced relatively soon.

The intent was also to provide for a coordinated return to service for the FSD that would not be burdensome on the sponsor or the NSPM unless the situation warranted otherwise. Unfortunately, during the development of the NPRM we inadvertently overlooked the fact that some routine maintenance often requires disassembly of some parts of an FSD that would render the FSD unusable during that disassembly. For example, changing a projector tube in the visual system would require some disassembly and would make the FSD unusable until the tube was replaced and the housings were reassembled. It was not the intent of the FAA to require an FSD to automatically lose its qualification during the routine nature of such regular maintenance functions. If there are those who have suggestions for modification of the language that would clarify the intent as describe above, we suggest you make those recommendations in accordance with the instructions contained in the NRPM under the "Comments Invited" section.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=176)

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Date: December 04, 2002 02:39 PM

Author: Ed Cook

Subject: Commonality Threads in FSD Modifications

In reading some of the questions posted to date, there seems to be some commonality threads regarding FSD modifications that may be crossing one another. It would seem that essentially three (3) questions/issues are being raised. Below are those three questions and our response to each:

1) What modifications made to an FSD require NSPM notification?

The intent was to require that only certain modifications require NSPM notification. These are the modifications, software or hardware, that are intended to impact flight or ground dynamics, impact performance or handling characteristics of the simulator, or impact simulator systems. We did not intend to require NSPM notification for things like normal, routine maintenance functions (e.g., calibration of instrumentation, motion, or control loading systems or navigation data updates); changes to the training functions of the simulator (e.g., modifications to the Instructor Operating Station [including lesson plans, etc.] or malfunction operations); or changes to add or update visual models.

2) What records are required to be maintained when an FSD modification is made?

The intent was to require that a record be maintained for all modifications to an FSD whether they are software or hardware modifications.

A record of hardware modifications/changes is reasonably self-explanatory – simply a record of what hardware was modified or changed.

For the software side, Section 60.31(a)(2) requires that "... a copy of the programming used during the evaluation of the FSD for initial qualification and for any subsequent upgrade qualification and a copy of all programming changes made since the evaluation for initial qualification." The intent here was to require the sponsor to maintain control of the software configuration to the extent that what is loaded into the FSD computer be identified and maintained in a manner that will ensure that the correct, qualified software is being used for training, testing, and/or checking.

For either hardware or software modifications a statement as to "why" the sponsor made the modification or change should be available for review.

3) What are the timing requirements for FSD modifications when the airplane manufacturer, an other accepted data source, or the aerodynamic model developer indicates that a modification to the airplane is being made or is required, an update to the flight test data package is available, or when a change is available to the aerodynamic model?

The intent was to require each sponsor to update simulator hardware and programming within 6 months of airplane modification or appropriate data release. However, we recognize that sponsors who are operators of large fleets of airplanes may require a window of time to complete the subject modification to that airplane fleet. The FAA's expectation is that the FSD modification should take place within that window, with the specific date dependant on coordination with the Principal Operations Inspector or Training Center Program Manager due to training, testing, and/or checking requirements. Additionally, in accordance with the proposed rule, this timing may be adjusted in coordination with and the concurrence of the NSPM.

If there are those who have suggestions for modification of the language that would clarify the intent as described above, we suggest you make those recommendations in accordance with the instructions contained in the NPRM under the Comments Invited section.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=94)

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Date: December 04, 2002 05:54 PM

Author: Michael Brown (michael.d.brown@ual.com)

Subject: Training Centers

What is the intent of this requirement with respect to a training center with no aircraft? Would they be allowed to maintain a "generic" aircraft cockpit in the FSD and not have to upgrade as the customer upgrades there aircraft? Would they be required to match the cockpit configuration of the representative aircraft of each customer?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=122)

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Date: December 05, 2002 01:01 PM

Author: Ed Cook

Subject: Clarification Re: Training Centers with no aircraft

As stated above, the intent was to require each sponsor, including part 142 training center certificate holders, to update simulator hardware and programming within 6 months of airplane modification or appropriate data release. The requirement that is currently levied on training centers for simulator qualification is to identify a specific airplane for which they offer an FAA-approved course of training. The simulator must then simulate that identified airplane. Some have gone so far as to identify the airplane by tail number; others have identified a "block code," where the airplane manufacturer will build several tail-numbered airplanes under a single "block code," with all airplanes built under that code being the same series of airplane, and sharing essentially the same equipment, engines, avionics, etc. For example, the Boeing company built B-737-200 series airplanes under several such "block codes," with 2T4 and 2Q9 being two such codes. The NSPM has not specifically required the "by-tail-number" or the "block code" approach, but we have required the sponsor to identify the airplane being simulated. Training center sponsors are not required to modify the training center's FSD when their customer's airplanes are modified – unless, of course, the identified airplane the training center chose to simulate is that specific customer's airplane and it is that airplane that is being modified. The identified airplane may be, or may not be, a specific airplane operated by one of the training center's customers. However, changes to the airplane identified by the sponsor for simulation purposes would trigger a modification to that simulator in accordance with the requirements set out in the proposed rule.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=126)

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Date: December 13, 2002 11:04 PM

Author: Alex Marodi (amarodi@usairways.com)

Subject: Re: Commonality Threads in FSD Mods -

Regarding item 1) of your response then, is it correct to say that the sponsor must meet the notification requirements of paragraph 60.23 (c) only when the modifications, software or hardware, are intended to impact flight or ground dynamics or performance or handling characteristics of the simulator?

Please clarify what "performance characteristics of the simulator" encompasses.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=309)

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Date: December 18, 2002 03:51 PM

Author: Ed Cook

It is correct to say what you have said up to that point, but that is not where the requirements stop. In addition to notifying the NSPM when modifications (software or hardware) impact

flight or ground dynamics or impact performance or handling characteristics of the simulator, it is also true the sponsor must notify the NSPM when replacements of the visual system, the motion system, the control loading system, the host computer (or computer complex) system, the instructor operating system, or the performance/handling software are made.

"Performance characteristics of the simulator" have traditionally meant the performance characteristics of the simulated airplane.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=337)

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Date: December 04, 2002 04:01 PM

Author: Michael Brown (michael.d.brown@ual.com)

Subject: Statement of Qualification--Figure 4B

This figure lists tasks from the QPS subjective tests.

- 1) If this is to be an exhaustive list, then "other" should not be an acceptable task.
- 2) If this is to be an exhaustive list and since the form itself is linked to the QPS list of subjective tests (see boxed statement near the top of the form, "The following are those items...", what allows a Sponsor to add a task to this list (e.g., predictive windshear training)?
- 3) For any task, where is the objective list of FSD requirements that must be met to use a FSD for a particular training task? Example: If a Sponsor were to contend that a level 5 device was qualified for ILS Cat III autoland approaches, on what basis would the NSPM agree or disagree?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=117)

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Date: December 05, 2002 12:55 PM

Author: Ed Cook

Subject: Clarification of Statement of Qualification

Since this may be a somewhat longer answer, let me restate each question part and then answer each question part successivley --

- 1) If this is to be an exhaustive list, then "other" should not be an acceptable task.

Answer: The intent of the list in figure 4B (Sample Statement of Qualification, Qualified/Non-Qualified List; QPS Attachment 5; Sample Documents) was to be an "exhaustive" list of tasks. The "other" reference in the sample document was to indicate that this sample list was not necessarily exhaustive in itself, but that the list could be expanded (or, in fact, contracted) to fit the appropriate sponsor's FSD.

- 2) If this is to be an exhaustive list and since the form itself is linked to the QPS list of subjective tests (see boxed statement near the top of the form, "The following are those items...", what allows

a Sponsor to add a task to this list (e.g., predictive windshear training)?

Answer: The intent was to identify all the tasks for which the FSD was qualified. Any motivation of the sponsor to add tasks to the qualified list would be sufficient to adjust the list. Additions to the list may or may not require additional demonstrations or additional testing by the NSPM. For example, not all FSDs are authorized to perform the circling approach maneuver. Should the sponsor wish to add this maneuver to the Qualified/Non-Qualified list, an NSPM evaluation of the circling maneuver, recording the airport model and runway combinations used would be required. Not all FSDs are authorized to perform the windshear escape maneuver. Should the sponsor wish to add this maneuver to the Qualified/Non-Qualified list, an NSPM evaluation of both the objective and subjective tests required as well as an NSPM review of the equipment installation (warning device or warning and flight guidance, etc.), in accordance with the current requirements, would be required.

3) For any task, where is the objective list of FSD requirements that must be met to use a FSD for a particular training task? Example: If a Sponsor were to contend that a level 5 device was qualified for ILS Cat III autoland approaches, on what basis would the NSPM agree or disagree?

Answer: At this time the only places where a list of "authorized" tasks may be found for a particular level of FSD are in the Practical Test Standards (published by the FAA's Regulatory Support Division, AFS-600, in Oklahoma City, OK) and the FAA Aviation Safety Inspector Handbook, FAA Order 8400.10, published by FAA Flight Standards, Washington, DC. Additionally, we recognize that in some areas, individuals have pointed out discrepancies between these two sources. In an effort separate from this NPRM the FAA is looking at how these discrepancies may be identified and the information consolidated in a single reference for convenience and standardization.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=124)

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Date: December 05, 2002 03:47 PM

Author: Jugal Saini (jugal.saini@nwa.com)

Subject: Page 60314, 60.15, j

Comment – The current practice at Northwest Airlines is to write Letter of Request, per attachment 5 figure 1, to POI and cc NSPM enclosing QTG. Could not Letter of Request be changed to be addressed to NSPM, accompanying QTG, and cc POI? Since POI does not review the QTG.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=143)

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Date: December 11, 2002 08:06 AM

Author: Ed Cook

Subject: Letters of Request; "To" and "cc"

It has always been the intent of the NSPM to respect the relationship that exists between a

certificate holder (the operator) and the FAA -- where the primary contact between the two is the Principal Operations, Maintenance, or Avionics Inspector (POI, PMI or PAI). As we deal exclusively in the "operations" area, our involvement has been limited, at least to this point, to dealings with the POI. Having said that, we have never intended to usurp the authority or responsibility of the POI, including by-passing his/her office when the FSD sponsor communicates with our offices (including the opportunity to review any attachments to that communication) -- nor does this NPRM intend to modify that position. However, as we have attempted to clarify for sometime, we do not object to having communications come directly from the sponsor (including any attachment such as a QTG) as long as the POI is aware of the communication (and attachment) and he/she has authorized the process used (either individually or as a standing practice). The only change in communication practices that this NPRM proposes is that, after qualification of an FSD, our staff would provide, directly to the sponsor with appropriate copies to the POI, the Statement of Qualification -- where, historically, after qualification of an FSD, a memorandum of qualification had been sent by our staff to the POI, without copies to the sponsor.

In the specific instance you cite, we do not object to, and we support, receiving the Letter of Request and the QTG directly from the sponsor -- provided the POI is aware of the correspondence and the QTG being sent to us and is in agreement that he/she does not need or want to review that QTG. However, this remains the decision of the POI.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=214)

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Date: December 05, 2002 03:52 PM

Author: Ed Cook

Subject: Commonality Threads in FSD Modifications, part II

After reviewing the questions and answers that have been posted regarding this topic, it became apparent that additional information regarding FSD modifications might be of value.

We recognize that there may be times when an airplane manufacturer might provide additional, supplemental, or corrective information that would indicate that a modification to the airplane fleet should be made, and thereby, require a modification to the FSD. We also recognize that, in at least some cases the Sponsor, the Principal Operations Inspector, or the Training Center Program Manager may decide that the additional information is not significant enough so as to warrant a change to the FSD. An example might be a set of circumstances that is thought to be transparent to the flight crewmembers while, at the same time, lacking any other FSD influence. In the event of these circumstances, it is the intent of the FAA that appropriate coordination takes place between the affected parties to be sure that this conclusion is correct. To help ensure this coordination is initiated, the requirements of Section 60.13(f) were developed. ["...When an FSD sponsor learns, or is advised by an aircraft manufacturer or supplemental type certificate (STC) holder, that an addition to, an amendment to, or a revision of the data used to program and operate an FSD used in the sponsor's training program is available, the sponsor must immediately notify the NSPM"]

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=144)

Date: December 06, 2002 11:27 AM

Author: Michael Brown (michael.d.brown@ual.com)

Subject: modification definition

Based on the clarifying statements above, is the following a fair statement of the intended definition of "modification" that would apply to 60.23(b)-(g) and 60.31(a)(2),(5)?

(a)For the purposed of this part, a FSD is said to have been modified when: (1)Additional equipment or devices intended to simulate aircraft appliances are added; (2)Changes are made to either of the following that are intended to impact flight or ground dynamics or impact performance or handling characteristics of the simulator (i)Software, (ii)Hardware; (3)Replacement or modification of the host computer; (4)Replacement or modification of the motion, visual, or control loading systems (or sound system for FSD levels requiring sound tests and measurements).

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=152)

Date: December 10, 2002 03:02 PM

Author: Ed Cook

Subject: Essentially, yes.

Yes.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=206)

Date: December 06, 2002 02:30 PM

Author: Michael Brown (michael.d.brown@ual.com)

Subject: modification notification

Based on the clarifying statements above, is this a fair statement of the NSPM's intent of the modification notification process of section 60.23?

For circumstances other than those described in paragraph (c) of this section [60.23], the sponsor may not use, or allow the use of, or offer the use of, the FSD with the proposed modification for flightcrew member training or evaluation or for obtaining flight experience for the flightcrew member to meet any requirement of this chapter unless: (1)Twenty-one days have passed since the sponsor notified the NSPM and the TPAA of the proposed modification and the sponsor has not received any response from either the NSPM or the TPAA; (2)Twenty-one days have passed since the sponsor notified the NSPM and the TPAA of the proposed modification and one has approve the proposed modification and the other has not responded; (3)Fewer than twenty one days have passed since the sponsor notified the NSPM and the TPAA of the proposed modification and the

NSPM and TPAA both approve the proposed modification. (i)Prior to approval, the NSPM may require that the modified FSD be evaluated in accordance with the standards for an evaluation for initial qualification or any part thereof before it is placed in service.

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Date: December 10, 2002 03:03 PM

Author: Ed Cook

Subject: Essentially, yes.

Yes

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Date: December 05, 2002 03:54 PM

Author: Jugal Saini (jugal.saini@nwa.com)

Subject: Page 60314, 60.15, i

General comment about Rule in Appendix --- QPS Requirements should begin with independent starting indenting. For example, on page 60314 paragraph 'i' should be renamed as paragraph 'a'. Also paragraph referencing in QPS Requirements should be based on the Rule number. For example, on page 60314 in paragraph 'i' "paragraph 11.b.(4)" should be rewritten as "paragraph 60.15.b.(4)"

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Date: December 09, 2002 12:38 PM

Author: Ed Cook

Subject: Acknowledgement

Thanks for the comment.

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Date: December 05, 2002 04:50 PM

Author: Jugal Saini (jugal.saini@nwa.com)

Subject: Page 60314, 60.15, k(3) and 60315, 60.15, s

Clarification – Need to clarify convertible simulator mentioned in 60.15, k (3) and convertible simulator mentioned in 60.15, s.----- Convertible simulator mentioned in 60.15, k(3) means, for example, a

757-200 simulator that has one QTG with two engine options (PW and RR). This QTG should include two simulator information pages, one for PW engine and second for RR engine. Convertible simulator mentioned in 60.15, s means, for example, an A330-300 simulator with its QTG and an A340-300 simulator with its QTG, using the same platform, host computer, motion system, visual system, etc.

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Date: December 09, 2002 12:43 PM

Author: Ed Cook

Subject: Intent Re: "convertible" FSDs

The intent behind including the language in the referenced paragraphs as printed was our continuing effort to move from current practice to regulatory requirements as much as possible. If there are those who have suggestions for modification of the language that would better convey the intent of "convertible FSDs," we suggest you make that recommendation in accordance with the instructions contained in the NPRM under the "Comments Invited" section.

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Date: December 06, 2002 08:28 AM

Author: Patrick T. Cleary (patrick.cleary@nwa.com)

Subject: Cockpit Equipment Functionality

In reference to Appendix A, Attachment 3, (QPS page 60355) please clarify the following; 1) a. Preparation for preflight states in part "accomplish a functions check of all installed switches, indicators, systems, at all crewmember stations and instructors stations". Does this mean that certain "systems" (i.e. ACARS) which may not now be currently functionally simulated, will be required to be functionally simulated under the six year window of 60.17 (b)? 2) b. Surface Operations (Pre-Takeoff) (c) Abnormal Starts and Shutdowns. Will NSP accept a formal QTG test for the demonstration of a "hot start" procedure in accordance with the operators FAA approved manuals and checklists? Meaning the simulation ends with the proper execution of the procedure and not be required to be tailored based on subjective evaluator opinions. 3) b. Surface operations (Taxi and Post Landing) These sections are completely void of minimum airport visual scene requirements to be evaluated for simulator qualification. Please clarify the minimum airport visual scene requirements for simulator qualification at each the proposed Levels. 4) c. Takeoff (e) Special Performance (also (2) (b). Please provide a definition of "Special Performance". 5) d. Inflight Operation (2) Cruise (g) Performance Turn. Please provide a definition of "Performance Turn". 6) d. Inflight Operation (2) Cruise (r) Airborne Hazard. Please clarify what specifically is required to satisfy this requirement, crossing traffic (visual), TCAS (IMC), Icing, Thunderstorm/Lightning, etc. 7) d. Inflight operation (2) Cruise (t&u) Upset Recovery. Please clarify how this requirement will be tested and qualified against what data. 8) d. Inflight Operation (2) Cruise (v) Traffic Alert and collision avoidance. Please clarify if TCAS will be required for the issuance of a State of Compliance. 9) d. Inflight Operation (2) Cruise (w) Effects of airframe icing. Please clarify what the effects of airframe icing are required to be, given that for 121 operators pre-takeoff de-icing regulations

already exist, most transport category aircraft operationg procedures require the use of anti-ice systems when certain atmosheric weather conditions exist, and most "cruise" flight levels are typically above weather where icing conditions would exist. 10. FAR 121 Appendix H. Level D, Visual Requiremens (7) Weather radar presentations. Please clarify if the exclusion of weather radar simualtion as specified in the cited 121 section is an ommision and it will be included into FAR 60.

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Date: December 10, 2002 02:49 PM

Author: Ed Cook

Subject: Re: Cockpit Equipment Functionality

Due to the length of this question, I'll restate the question, in part, and then answer that part.

Question: In reference to Appendix A, Attachment 3, (QPS page 60355)please clarify the following; 1) a. Preparation for preflight states in part "accomplish a functions check of all installed switches, indicators, systems, at all crewmember stations and instructors stations". Does this mean that certain "systems" (i.e. ACARS)which may not now be currently functionally simulated, will be required to be functionally simulated under the six-year window of 60.17 (b)?

Answer: The Part 60 NPRM does not propose to change the requirements for FSD configuration for existing FSDs. The preflight preparation section of Appendix A, Attachment 3, states that the preflight assessment should include a functions check of all installed switches, indicators, systems, at all crewmember stations and instructors stations. The intent of attachment 3 is to indicate all areas and functions that must be accomplished by the sponsor prior to an evaluation by the NSPM, with the NSPM sampling those areas and functions during the initial evaluation; and to show the possibilities of the functions that may be involved. The areas and tasks listed in attachment 3 were not intended to be an all inclusive list, as can be seen by the "other" classification at the end of each section of that attachment. The requirement that would be levied at a point 6 years following the NPRM becoming a final rule has to do with issuing a Statement of Qualification for each FSD; including the Certificate, the Configuration List for the then-existing configuration, and the Qualified/Non-Qualified task list for the then-existing qualified FSDs; unless, of course, the sponsor wishes to make an adjustment to either.

Question: In reference to Appendix A, Attachment 3, (QPS page 60355)please clarify the following; 2) b. Surface Operations (Pre-Takeoff) (c) Abnormal Starts and Shutdowns. Will NSP accept a formal QTG test for the demonstration of a "hot start" procedure in accordance with the operators FAA approved manuals and checklists? Meaning the simulation ends with the proper execution of the procedure and not be required to be tailored based on subjective evaluator opinions.

Answer: This specific issue has been raised on more than one occasion throughout the history of the FAA's evaluation of simulators – the most recent being approximately a dozen years ago. Our position is that there are no "objective tests" to be accomplished regarding "hot starts" on jet engines. We understand the proposal that the (hot start) simulation end when the proper execution of the procedure has been completed. The question quickly becomes, what does the simulation do

if the procedure (shut off the fuel, continue to motor the engine, etc., etc.) is not properly executed? Certainly, it would be unrealistic to have the simulator programming "take care of the problem" if the flight crewmember failed to do so. In current practice, once the flight crewmember applies the proper procedure the "malfunction" is cleared and training/testing/checking continues. However, if the flight crewmember does not apply the proper procedure, the simulation continues to the point of "over-tempering" the engine or having a fire develop depending upon how the malfunction has been programmed to behave without the intervention of the flight crewmember. We are after realism, to the extent that we can simulate it, and believe the existing methods accommodate that goal.

Question: In reference to Appendix A, Attachment 3, (QPS page 60355) please clarify the following; 3)b. Surface operations (Taxi and Post Landing). These sections are completely void of minimum airport visual scene requirements to be evaluated for simulator qualification. Please clarify the minimum airport visual scene requirements for simulator qualification at each the proposed Levels.

Answer: It was the intent of the FAA to move from existing practice to the regulatory structure proposed. We recognize that existing international standards have been modified/developed and are likely to be published by ICAO in the near future. In an effort separate from this NPRM we are developing a method to update Part 60, including the QPS appendices. Please see our answer to a similar question, posted on December 4, titled, "Revision Process." Other respondents have had questions in this same area and are suggesting that the FAA develop an alternative method of compliance until the Part 60 NPRM can be published as a final rule and the modification process for Part 60 is in place and functioning. In the mean time, there is a list of airport visual scene requirements posted on the NSP Website under "In Works" that may provide you additional information.

Question: In reference to Appendix A, Attachment 3, (QPS page 60355) please clarify the following; 4)c. Takeoff (e) Special Performance (also (2) (b)). Please provide a definition of "Special Performance".

It was the intent of the FAA to capture all the possible takeoff considerations (without being necessarily specific) that were different from "normal," "night," "rejected," "instrument," and "with one engine inoperative." Examples of the kinds of takeoffs that were envisioned that might fit into a "special performance" category might be "soft field takeoff," "short field takeoff," or "takeoff with more than one engine inoperative" (probably reserved for special, ferry flight crew exposure).

Question: In reference to Appendix A, Attachment 3, (QPS page 60355) please clarify the following; 5)d. Inflight Operation (2) Cruise (g) Performance Turn. Please provide a definition of "Performance Turn".

Answer: It was the intent to capture all of the possible turns that were different from what one might consider to be "normal" turns. Examples of the kinds of turns that were envisioned that might fit into a "performance turn" category might be "steep turns" (with bank angles in excess of 30 degrees) or turns in a computer controlled aircraft that would require constant pressure on the roll controller in the direction of the turn to maintain the increased bank angle (including those that might require "back pressure" on the controller to maintain altitude), and turns that might be conducted at airspeeds close to stall airspeed.

Question: In reference to Appendix A, Attachment 3, (QPS page 60355) please clarify the following; 6)d. Inflight Operation (2) Cruise (r) Airborne Hazard. Please clarify what specifically is required to satisfy this requirement, crossing traffic (visual), TCAS (IMC), Icing, Thunderstorm/Lightning, etc.

Answer: It was the intent of the FAA to codify current industry practices into the Part 60 NPRM. The current standards/practices (as set out in AC 120-40B) call for "(the) capability to present ground and air hazards such as another airplane crossing the active runway or converging airborne traffic." As you know, there is no current requirement for the visual traffic described here to be correlated to the TCAS presentation – however, some sponsors/simulator manufacturers have elected to present this correlation.

Question: In reference to Appendix A, Attachment 3, (QPS page 60355) please clarify the following; 7)d. Inflight operation (2) Cruise (t&u) Upset Recovery. Please clarify how this requirement will be tested and qualified against what data.

Answer: At this time we are not aware of any specific regulatory requirements that exist for the establishment of upset recovery training/testing/checking. However, we are aware of several FSD sponsors who have such programs available in their FSDs. In discussions we have had with those involved in addressing this issue in the past we have pointed out the limitations of the FSD programming and the associated limitations of the flight test validated maneuver envelope. It was the intent of the FAA in including both the "Upset/disturbance recovery" and the "Unusual attitude recovery" maneuvers in the list of Operations Tasks to make FSD sponsors aware of the potential future requirements and to raise the consciousness levels of those involved to ensure that when/if such programs are incorporated that such incorporation is made with appropriate limitations and understandings.

Question: In reference to Appendix A, Attachment 3, (QPS page 60355) please clarify the following; 8)d. Inflight Operation (2) Cruise (v) Traffic Alert and collision avoidance. Please clarify if TCAS will be required for the issuance of a State of Compliance.

Answer: Currently operating FSDs are not required by the language in the NPRM to have operational TCAS systems. However, in some cases Principal Operations Inspectors or Training Center Program Managers have insisted that their assigned certificate holder(s) complete training in a TCAS-equipped FSD. We must point out, however, that in accordance with the language in proposed section 60.35(a), after a date 18 months following the effective date of the final rule no simulator will be eligible for initial or upgrade qualification unless it simulates the operation of all equipment and appliances installed and operating on the aircraft being simulated, if the controls or indications are located in the aircraft cockpit. This would include TCAS installations.

Question: In reference to Appendix A, Attachment 3, (QPS page 60355) please clarify the following; 9)d. Inflight Operation (2) Cruise (w) Effects of airframe icing. Please clarify what the effects of airframe icing are required to be, given that for 121 operators pre-takeoff de-icing regulations already exist, most transport category aircraft operating procedures require the use of anti-ice systems when certain atmospheric weather conditions exist, and most "cruise" flight levels are typically above weather where icing conditions would exist.

Answer: Notwithstanding the points you make regarding current Part 121 operations, it was the

intent of the FAA, by including this requirement in the attachment referenced, to ensure that an FSD for an aircraft in which it was possible to be dispatched into or to inadvertently encounter icing conditions would be able to properly simulate appropriate icing effects, with normal and abnormal systems operation. As you may know, in an effort separate from this NPRM, the NSP staff has engaged several representatives of the aviation community in constructing and subsequently modifying language (presently available on the NSP Website, "In Works" section) and has discussed similar language in the recently developed International Standards for simulator qualification.

Question: In reference to Appendix A, Attachment 3, (QPS page 60355) please clarify the following; 10. FAR 121 Appendix H. Level D, Visual Requirements (7) Weather radar presentations. Please clarify if the exclusion of weather radar simulation as specified in the cited 121 section is an omission and it will be included into FAR 60.

Answer: Weather radar presentations in FSDs is addressed in the current standards for flight simulator evaluation. It was the intent of the FAA to incorporate these requirements into the proposed Part 60 regulatory language. No change to current FSD configuration is required by the Part 60 NPRM. Again, however, in accordance with the language in proposed section 60.35(a), after a date 18 months following the effective date of the final rule no simulator will be eligible for initial or upgrade qualification unless it simulates the operation of all equipment and appliances installed and operating on the aircraft being simulated, if the controls or indications are located in the aircraft cockpit. This would include weather radar installations.

Again, I would point out that if there are those who have suggestions for modification of the language that would better convey the FAA's intent, we suggest you make those recommendations in accordance with the instructions contained in the NPRM under the "Comments Invited" section.

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Date: December 13, 2002 10:10 PM

Author: Alex Marodi (amarodi@usairways.com)

Subject: Re: Cockpit Equipment Functionality - Web Site Policy Issues

Please clarify how the FAA now intends to handle the policies under the In Works section on the web site. Does the FAA intend to eventually incorporate the policies into Part 60, and then remove them from the site?

For instance, the draft of the November revision of the Icing Policy looks reasonable. So, if sufficient grounds for its inclusion in Part 60 are provided via formal comment to the docket, would the FAA insert it into Part 60 -- say, along with ground effect in Attachment 2, paragraph 6 (pp. 60323 and 60347)?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=308)

Date: December 17, 2002 12:22 PM

Author: Ed Cook

Subject: Web Site Policy Issues

At the moment the NSP plans to use the "In Works" section of the Website to "discuss" problems and potential solutions – much like the Icing Policy development issue that you reference. If the issue is NOT addressed in the language or chart information of the QPS Requirements of the QPS Appendices of Part 60, we plan to move the issue from the "In Works" section (after the discussions and modifications have taken place and completed at the "In Works" location) to the "Policy" section (...and, we're looking at changing the titles of these areas to more closely match what we're actually doing...) and will apply that policy in our future evaluations / audits / inspections / qualifications.

When the issue IS addressed in the QPS Requirements language/charts, the issue will remain in the "In Works" section until such time as we can initiate the QPS Revision process we have discussed elsewhere on this bulletin board. Once the appropriate change is made in the QPS Requirements and published the issue will be removed from the Website.

Any recommendations to change the currently proposed NPRM language are welcome in accordance with the "Comments Invited" section of the NPRM.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=311)

Date: December 09, 2002 11:56 AM

Author: Randy Schwellinger (rschwellinger@atlasair.com)

Subject: 60.27 a. (1) Typographical Error?

Is the reference to 60.9(b)(4) correct? Should the correct reference be 60.7 c. (1)?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=183)

Date: December 09, 2002 02:08 PM

Author: Ed Cook

Subject: Incorrect reference

The reference in 60.27(a)(1) to "...in accordance with Section 60.9(b)(4) is incorrect. The intended reference, as you note, is "...in accordance with Section 60.7 (c).

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=190)

Date: December 10, 2002 04:32 PM

Author: Jugal Saini (jugal.saini@nwa.com)

Subject: Page 60306, 60.16

Clarification --- There is conflict between 60.16 (a) (1) (i) and (a) (2) (i) : If initial qualification is necessary per (a)(2)(i), would the existing (or unmodified) part of MQTG in (a)(1)(i) be evaluated based on the criteria under which it was originally qualified? Initial evaluation implies creating a whole new QTG and be evaluated per current standards.
Clarification --- What is the recourse that a sponsor may have if he does not agree with NSPM's determination that an initial qualification is warranted for modification that have been made?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=208)

Date: December 10, 2002 04:40 PM

Author: Jugal Saini (jugal.saini@nwa.com)

Subject: Page 60316, 60.17

This part of Rule 60.17 should be included in QPS Rule, and subsequent paragraphs renamed accordingly --- b. For each FSD qualified before [effective date of the final rule], no sponsor may use or allow the use of or offer the use of such an FSD after [date 6 years after the effective date of the final rule] for flightcrew member training, evaluation or flight experience to meet any of the requirements of this chapter, unless that FSD has been issued a Statement of Qualification, including the Configuration List and Restrictions to the Qualification List in accordance with the procedures set out in the appropriate QPS.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=209)

Date: December 11, 2002 11:58 AM

Author: Ed Cook

Subject: Thanks

Thank you for your suggestion.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=217)

Date: December 11, 2002 02:16 PM

Author: Ed Cook

Subject: Initial Evaluation -- current or former standards?

Let me address your question in two parts.

First – the proposed Section 60.16 addresses "additional qualifications." It is not the FAA's intent that any additional qualification (e.g., adding the qualification for circling approaches or for windshear maneuvers, etc.) would require the FSD to be re-evaluated in accordance with any newer standard beyond the one against which the FSD was originally evaluated.

However, it was the intent to provide notice that in some cases, additional qualification(s) sought may necessitate a traditional, initial evaluation. We prefer to reserve the decision regarding application of "current standards," but the general, "rule-of-thumb" situations where it is applied are those where three (3) or more FSD subsystems or the aerodynamic data are replaced subsequent to the original qualification, whether accomplished at once or incrementally. For purposes of this discussion, our meaning of sub-systems include the visual system, the motion system, the control loading system, the host computer (or computer complex) system, the instructor operating system, or the performance/handling software. For example, assume the additional qualification sought was for Recovery from Upset conditions on an FSD originally qualified under AC 121-14C. Further assume that this additional qualification involved or required the replacement of the existing 3-channel, 4 window, monitor-based visual system with a 210-degree by 60-degree, projected visual system and image generator; supported by an entirely new data package that included flight test maneuvers that provided validation data for maneuvers that exceeded the normal flight envelope; all of which was to be managed by an overhauled and updated IOS. It is our opinion that with such changes we should not continue to hold the FSD to the standards that existed for its original qualification, but rather place that FSD under the requirements of the standards in existence at the time the changes are made.

Second – proposed section 60.29(b), while not specifically designed to fit the circumstance describe above, does address those conditions where "...a sponsor seeks reconsideration of a decision from the NSPM or TPAA concerning the FSD qualification..." and then sets out the procedures to be followed.

Again, I would point out that if there are those who have suggestions for modification of the proposed rule language that would better convey the intent, we would suggest those recommendations be made in accordance with the instructions contained in the NPRM under the "Comments Invited" section.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=218)

Author: Alex Marodi (amarodi@usairways.com)

Subject: Additional Qualifications Necessitating Initial Evaluations

The FAA says that in some cases, additional qualification(s) sought may necessitate a traditional, initial evaluation, and explains "rule of thumb" situations where it is applied. The FAA gives an example for an additional qualification sought for Recovery from Upset conditions. After consideration, the FAA's opinion is that this would necessitate a initial evaluation.

Since an initial evaluation is necessitated in this case then, must the sponsor also install, as part of the Upset Recovery project, all previously inoperative equipment and appliances, like, for example, TCAS, Weather Radar, Predictive Windshear, Terrain Avoidance and Warning Systems, etc.?

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Date: December 17, 2002 12:25 PM

Author: Ed Cook

Subject: Initial Evaluations

In the example given, if the additional maneuver authorization required the replacement of the indicated systems (including a replacement of the aerodynamic program) resulting in an "initial" evaluation, the requirements in proposed section 60.35 would be applicable; i.e., the initial evaluation would include "...all equipment and appliances installed and operating on the aircraft being simulated if such equipment or appliances have controls or indications that are located in the aircraft cockpit."

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Date: December 10, 2002 05:01 PM

Author: Michael Brown (michael.d.brown@ual.com)

Subject: 60.31(d) Annual Report

What information is intended to be included in the "comprehensive statement"?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=211)

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Date: December 11, 2002 11:52 AM

Author: Ed Cook

Subject: Annual Report (potential alternative?)

The intent of the report referenced was to address the comprehensive functionality of the respective FSD with respect to its continued ability to perform and handle as it was originally qualified; i.e., its ability to meet the objective of FSDs – to provide competent and reliable training, testing, and/or checking of flight crewmembers. Originally intended as part of the QA program (hence, the management representative's signature) there was no specific listing regarding the content of this report. I would refer readers to the QPS Requirements (listed in paragraph 5 of each QPS appendix), specifically, subparagraph 5.f. (21), where the requirement described is to provide "...a complete, accurate, and clearly defined written description of and/or the procedure for...(h)ow, by whom, and how frequently internal audits of the QA program are conducted and where and how the results of such audits are maintained and reported to Responsible Management, the NSPM, and the TPAA." The thought was that as the sponsor completed these required periodic internal audits of the QA program, in which a specific FSD was a part, recognizing the on-going sponsor-conducted quarterly inspections, comments from users and technicians, and the NSP-conducted recurrent evaluations and other inspections, the functionality of any specific FSD would be necessarily apparent. It was the conclusion(s) regarding this functionality, from a comprehensive perspective, that was(were) to be described in the annual report.

However, it was not the intent of the FAA to require additional burdens on the sponsor nor require additional burdens on the NSP staff. While we recognize that having to generate, deliver, receive and/or act upon the information described here might produce that unintended burden, it was the intent to have the sponsor conclude and maintain a record of that (those) conclusion(s) regarding a specific FSD that perhaps could be met by the sponsor accomplishing both daily preflights of the FSD and internal QA audits, in which specific FSDs are a part. In fact, accomplishing the required internal QA audits should highlight difficulties experienced and any necessary corrective actions taken regarding the on-going sponsor-conducted quarterly inspections, comments from users and technicians, and the NSP-conducted recurrent evaluations and other inspections. A review of the internal QA audit reports maintained by the sponsor may well satisfy the original intent of this requirement.

If there are those who have suggestions for modification of the language that would better convey the intent as described here, we suggest you make those recommendations in accordance with the instructions contained in the NPRM under the "Comments Invited" section.

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Date: December 11, 2002 03:52 PM

Author: Jugal Saini (jugal.saini@nwa.com)

Subject: Page 60306, 60.19, (a) (1)

Clarification --- In current practice those performance demonstrations and objective tests (e.g. motion or latency etc.) that require special equipment to complete, are sequenced together. Will it be acceptable to NSPM under this rule?

>>>>> PLEASE DISREGARD THIS CLARIFICATION <<<<<<

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Date: December 13, 2002 08:24 AM

Author: Ed Cook

Subject: Disregarded...

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Date: December 13, 2002 06:47 PM

Author: Alex Marodi (amarodi@usairways.com)

Subject: Re: 60.31(d) Annual Report - Sample Available?

Could the NSP make available to sponsors, or post on its web site, the Academy's Annual Report for its B727 QA Program as an example of acceptable format/content for a sponsor's Annual Report? This would be very useful since, as I understand, the Academy's QA Program has been under the direction of both the NSP and the QA consultant. According to the NSP, the Academy's first audit is in the first quarter of '03 so it should be well on its way to formulating an Annual Report.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=301)

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Date: December 17, 2002 12:23 PM

Author: Ed Cook

Subject: FAA Academy B-727 QA Program

We will certainly consider your request; however, the Academy's B-727 QA program is nearing completion and will have its first Audit during the first quarter of 2003. As such, an "annual report" wouldn't be appropriate until the first anniversary of operation under that program. Additional information regarding the Academy's B-727 QA program is currently under review and details regarding the public availability of such information is currently being reviewed as well.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=312)

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Date: December 11, 2002 03:58 PM

Author: Jugal Saini (jugal.saini@nwa.com)

Subject: Page 60306, 60.19, (a) (1)

Clarification --- In current practice those performance demonstrations and objective tests (e.g. motion, latency, buffet, sound, or visual etc.) that require special equipment to complete, are sequenced together. For example all motion tests will be done in one quarter. Or all sound tests will be done in another quarter. Will it be acceptable to NSPM under this Rule?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=220)

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Date: December 12, 2002 07:47 AM

Author: Ed Cook

Subject: Special Equipment Requirements for Quarterly Inspections

We believe that it is the responsibility of the sponsor to not only ensure that an FSD continues to operate the way it was demonstrated to operate during the initial evaluation, but to also demonstrate that fact throughout its life. Certainly one way to help demonstrate this fact is to have the sponsor conduct a representative sampling of the QTG tests on each "quarterly inspection," conducted a minimum of 4 times throughout each year. However, it was not the intent of the FAA to be overly burdensome regarding the use of specialized equipment in the accomplishment of these quarterly inspections. As part of the submission of the content and sequence plan for these quarterly inspections to be submitted by a sponsor, we would likely approve logical justifications for the "grouping" of objective tests or performance demonstrations (like the ones mentioned in your question) to take advantage of the use of specialized equipment and/or procedures.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=224)

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Date: December 11, 2002 07:47 PM

Author: Robert A Curnutt (robert.a.curnutt@boeing.com)

Subject: ICAO 2nd Ed. tests as an acceptable alternative to Part 60

On page 60285, under "Obtaining and Maintaining FSD Qualification under the Proposed Rule", it states that the "sponsor must successfully complete the required objective and subjective tests of the FSD as specified in the appropriate QPS." Specific validation tests are then listed in Attachment 2 to Appendix A to Part 60 - Simulator Objective Tests.

Would it satisfy the FAA desire to refrain from making changes to the NPRM which might be construed as being more restrictive, by posting a statement on the NSP web site in the "Qualification Guidance" section that would allow the use of the ICAO 2nd Edition tests as an acceptable alternative - until Part 60 can be changed to include the ICAO tests?

The rationale behind this approach is that: 1) it is similar to the situation where qualifications were allowed based on International Standards / ICAO Manual 1st Edition requirements, in lieu of AC-120-40B; 2) the FAA-NSP participated fully in (and co-sponsored) the development of the 2nd

Edition ICAO manual; and 3) it is presumably the intent of the NSPM to update the Part 60 QPS as soon as practical to reflect the 2nd Edition ICAO content. Further, this would seem to be a straightforward way to allow for a single set of test requirements and reduce confusion in the interim period between release of Part 60 and the subsequent QPS update. It would also mitigate the potential economic impact on the data providers who could be required to provide data for two sets of differing standards: those of Part 60 and those of JAR-STD 1A which will be equivalent to the 2nd Edition of the ICAO Manual.

A related question is: Would the NSPM agree that the "Best Practices for Validation of Flight Simulators" (attachments A through H to the ICAO Manual, 2nd Edition), would also be considered appropriate to provide qualification guidance (not requirements) until such material can be included in Part 60?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=222)

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Date: December 18, 2002 09:04 AM

Author: Ed Cook

Thank you for your comments. We recognize the situation that has developed relative to the standards proposed in the Part 60 NPRM as they may differ from the standards that have recently been modified/developed in the international arena. Further complicating this fact is that our staff was, as most know, deeply involved in the modification of those "international standards." Unfortunately, the Part 60 language (including the technical requirements) was "locked" into the pipeline before those standards were modified.

The fact is that we do not have the authority to allow anyone to deviate from or otherwise not comply with a regulatory requirement outside of the established procedures for exemption or deviation. However, we believe these alternatives do not address the circumstance as adequately as required. Suffice it to say that once Part 60 becomes rule, simply posting alternative standards on our Website would not work. Therefore, we are looking at several ways in which we might address the "disconnects" that currently exist between these two sets of standards.

First, we are making a line by line comparison to see just how "different" the differences really are. We believe that knowing the magnitude of these differences will help facilitate the changes to our NPRM that the public may recommend (in accordance with the "Comments Invited" section of the NPRM), but we may make such changes only in accordance with the Regulatory Procedures Act.

Second, the FAA is currently developing a process for revising that portion of the content of the Qualification Performance Standards (QPS) documents (i.e., the four appendices to Part 60) referred to as "QPS Requirements." We are committed to working together with industry to propose changes to these "QPS Requirements" once Part 60, including the QPS appendices, becomes effective. The approach under consideration is one we have successfully used before. We envision receiving industry input in a controlled environment, with specific delivery dates for resulting recommendations.

In addition, the FAA plans to streamline the process for making most technical changes to the

"QPS Requirements" by delegating authority for final review and issuance to an appropriate level within the FAA's Regulation and Certification offices. The FAA believes that the delegation will result in more timely responses to incident/accident data and advances in aircraft or simulation technology.

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Date: December 12, 2002 05:05 AM

Author: Patrick T. Cleary (patrick.cleary@nwa.com)

Subject: 60.35

Reference 60.35 (b)(1) Does the term "ground operations" mean the same as as "surface operations" as listed in Appendix A, Attachment 3 (60355)? If so, should not the same nomenclature be utilized in both places??

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=223)

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Date: December 12, 2002 09:19 AM

Author: Ed Cook

Subject: "Ground" and "Surface" the same?

Your point is well taken. Thank you.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=226)

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Date: December 12, 2002 10:00 AM

Author: Randy Schwellinger (rschwellinger@atlasair.com)

Subject: 60.15b. Request for Initial

(4) A list of all of the operations tasks or simulator systems in the subjective test appendix of the appropriate QPS for which the FSD has not been subjectively tested (e.g., circling approaches, windshear training, etc.) and for which qualification is not sought.

The requirements outlined in 60.15b appear to prevent an operator from requesting an initial evaluation until all of the referenced tasks, systems, and tests are complete and functional. Taking into account the present delays in scheduling initial evaluations, would the NSPM accept as part of a "request for an initial evaluation" a list of items that, for whatever reason, cannot be tested at the time of the submittal? Is paragraph (4) a vehicle to do that? Or is the intention to list only the tasks or systems in the appropriate appendix for which qualification is not sought?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=227)

Date: December 12, 2002 03:27 PM

Author: Ed Cook

Subject: Linkage between subjective testing and the evaluation request

The requirements listed in Proposed 60.15(b) were not intended to be restricting with respect to the timing of evaluating the flight tasks and the submission of the request for evaluation; however, after reading the language from a different perspective, we can recognize the concern. The objective portion of the evaluation requires that the sponsor conduct all the objective tests (and provide test results in the QTG). The NSPM will then re-check a "sampling" of those tests during the on-site evaluation. The intent of sub-paragraph (4) was not as a vehicle to record the tasks that were not reviewed by the pilot(s) prior to submitting the request for evaluation. The intent was for the subjective portion of the evaluation to mirror the objective test requirements as much as possible.

In doing so we intended to have the sponsor's designated pilot(s) evaluate each task for which the FSD was to be used and determine its suitability to meet the design goal (to provide competent and reliable training, testing, and/or checking for flight crewmembers on a set of defined tasks – driven, undoubtedly, by the training program requirements) and have the NSPM re-check a "sampling" of those tasks during the on-site evaluation. Because it was not the intent to have the determination for all such tasks completed prior to submitting the request, and there is an existing requirement for submission of a QTG, perhaps looking at these submissions in a similar time frame would be appropriate, even if an adjustment in the sample letter of request would result.

Again, if there are those who have suggestions for modification of the language that would better convey the intent as describe here, we suggest you make those recommendations in accordance with the instructions contained in the MROM under the "Comments Invited" section.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=234)

Date: December 12, 2002 01:59 PM

Author: Stephane Clement (stephane.clement@cae.com)

Subject: Page 60320, 3 (c)

Page 60320 - 3 (c) Please confirm that paragraph 3 c) only applies if change/update affects training.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=228)

Date: December 12, 2002 03:35 PM

Author: Ed Cook

Subject: Please see previous post...

We attempted to address the issues that develop when changes or updates to data packages and

FSD programming occur. Please see our posting, titled "Commonality Threads in FSD Modifications, Part II," posted on 12/05/02, to see if the material discussed there addresses your question. If not, please post an additional question.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=235)

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Date: December 12, 2002 02:13 PM

Author: Stephane Clement (stephane.clement@cae.com)

Subject: Page 60334 - case 2.d.1

Does test 2d1 apply to levels A and B, because previously it did not?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=229)

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Date: December 12, 2002 04:12 PM

Author: Ed Cook

Subject: Yet another typo.....

You have pointed out yet another typographical error. The test requirement for Cruise, Accelerations and Decelerations apply only to Level C and Level D simulators, not to Level A and Level B simulators as presented in the NPRM.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=241)

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Date: December 12, 2002 02:21 PM

Author: Stephane Clement (stephane.clement@cae.com)

Subject: Page 60335 - case 2.e.3 & 2.e.4

Could you please clarify what are the accepted ground handling model calculations?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=230)

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Date: December 12, 2002 04:29 PM

Author: Ed Cook

Subject: Ground Handling Model Calculations

[This is taxing the memory of some of the "old heads"]

As we recall, both NASA and Boeing had done some ground deceleration flight tests with enough variations and repeats on a specific airplane type (e.g., B-727) that they were able to develop a set of formulae to provide calculated stopping distances. Using these formulae would allow an

operator / FSD sponsor / FSD manufacturer to "plug in" variables such as tire size, tire footprint, tire pressure, tire loading, number of tires on a truck, the number of trucks, the gross weight of the aircraft, runway condition (rough, smooth, wet, dry, icy, etc.) and numerous other factors that would enable that operator / sponsor / manufacturer to calculate the stopping distance for their particular airplane.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=242)

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Date: December 12, 2002 02:39 PM

Author: Stephane Clement (stephane.clement@cae.com)

Subject: Page 60331 - 1.b(2)

Please clarify the wording. It refers to the "required SOC", but it is not clear what the required SOC is. CAE agrees a SOC should be required for motion safety, but could not find such a requirement in the proposed text. This paragraph also states: "to safely operate within the simulators maximum excursion, acceleration, and velocity capabilities (see para 3)". Shouldn't the requirement be that the motion system is safe, regardless of the requirements in paragraph 3?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=231)

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Date: December 12, 2002 04:43 PM

Author: Ed Cook

Subject: Required Statements of Compliance and Capability

At the start of Attachment 2, to Appendix A to Part 60, paragraph a.(3) under "Begin QPS Requirements," states, "Certain tests included in this attachment must be supported with a Statement of Compliance and Capability (SOC). In the following tabular listing of simulator tests, requirements for SOC's are indicated in the 'Test Details' column." In the Table of Objective Tests, 3. Motion Systems, under the "Test Details" column, you will find a phrase such as, "An SOC is required for 3.a.(1) through (6). This phrase, or a similar one, is found in several locations in the Motion Systems section.

While you are certainly correct in your assumptive question, it was the intent of the FAA to highlight the necessity of having a safe motion system on FSDs so equipped.

If there are those who have suggestions for modification of the language used or the test requirements described we suggest you make those recommendations in accordance with the instructions contained in the NPRM under the "Comments Invited" section.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=243)

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Date: December 12, 2002 02:50 PM

Author: Stephane Clement (stephane.clement@cae.com)

Subject: Page 60331 - 1.a(11)(a) & 1.a(11)(b)

The proposed wording differs from Advisory Circular 120-40C in that it does NOT state that the motion system excursions have to be measured "without exceeding any safety limits". Is the omission of this phrase intentional so as allow maximum achievable (i.e. exceeding safety limits for normal operation) excursions be measured? Or is the statement assumed?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=232)

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Date: December 13, 2002 02:15 PM

Author: Ed Cook

Subject: Motion System Measurements

It was the intent of the FAA to establish the minimum requirements for operation / measurement of the referenced systems. No system submitted for evaluation and subsequent qualification should be required to exceed safety limits to meet the stated requirements.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=258)

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Date: December 13, 2002 05:23 PM

Author: Alex Marodi (amarodi@usairways.com)

Subject: Re: Motion System Measurements

The FAA states that it is their intent to establish the minimum requirements for motion operation and measurement of the referenced systems. Also, 7. a., on pg 60347, states, "The motion system characteristics in the Table of Objective Tests address basic system capability... . So, I assume you mean the motion system must be able to achieve the excursion, acceleration, velocity, and frequency response requirements, if needed, in normal operation.

If this is true, please clarify how the "system" is to be tested to validate the basic capabilities. For instance, based on the Test Details for Frequency Response and your definitions, it appears the test measures the frequency response of the combined Motion Drive Algorithm and Motion Hardware blocks (shown in Figure 3, pg 60349). If so, must we demonstrate that the motion system can achieve the minimum requirements for excursion, velocity, and acceleration using an appropriate input signal to the Motion Drive Algorithm and measuring the response of the Motion Platform, the same system tested for Frequency Response?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=299)

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Date: December 18, 2002 03:49 PM

Author: Ed Cook

Thank you for your question. The direct answer here is no, this would be redundant. Our intent here is to identify basic motion platform performance. Our overall intent was to incorporate present practices and previously drafted standards into a regulatory format. Our desire, on the other hand, would be to identify a dominant cue in each of the axes of freedom that would be excited by pilot controller input and driven through the equations of motion. If we could accomplish this and capture a description of that performance, a motion cue "repeatability" test with appropriate tolerances would not only match what the international community has decided regarding motion system requirements but also match the motion cue repeatability descriptions we have outlined in the NPRM.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=336)

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Date: December 12, 2002 03:10 PM

Author: Stephane Clement (stephane.clement@cae.com)

Subject: Page 60345 - 3.d.

Could you please clarify "Kinematic transformation equations" in this test?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=233)

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Date: December 13, 2002 02:16 PM

Author: Ed Cook

Subject: Kinematic transformations equations

Kinematic transformation equations are the equations used to translate the motion of the aircraft (as gathered during flight testing) into the requirements for movement of the motion platform on the FSD.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=259)

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Date: December 12, 2002 03:41 PM

Author: Stephane Clement (stephane.clement@cae.com)

Subject: 60345 - 3.b

These tests are in the Table of Objective tests, yet require a SOC. Wouldn't the objective tests nullify the need for an SOC? Alternatively, perhaps only a SOC is required, and not objective tests. Could you please clarify?

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Date: December 13, 2002 02:18 PM

Author: Ed Cook

Subject: Objective Tests and SOC's

In structuring the tables of information presented in the NPRM we intended to mirror the requirements that had been previously discussed for motion system requirements. The requirement for a Statement of Compliance and Capability (SOC) was included prior to all of the detailed information on the testing requirements being finalized and incorporated. You are correct, there is no need for an SOC in that the objective tests preclude the need for such a statement.

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Date: December 12, 2002 03:58 PM

Author: Jugal Saini (jugal.saini@nwa.com)

Subject: Page 60317, 60.21, (a) (1)

Clarification --- What are the minimum requirements for the "limited set of flight test data"?

Suggestion – FAA should coordinate internally for required interim flight test data with Aircraft Certification Office.

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Date: December 13, 2002 02:32 PM

Author: Ed Cook

Subject: Limited Flight Test Data

There is no established listing for such flight test data as it is determined on a case-by-case basis after discussions with the airplane manufacturer – and perhaps the FSD manufacturer and proposed sponsor. Adjustments in flight test maneuver sequence, potential and temporary alternate tests, etc. are discussed to ensure that the data that is used to program and validate the FSD is the best possible under the flight testing plan as proposed.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=269)

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Date: December 12, 2002 04:02 PM

Author: Jugal Saini (jugal.saini@nwa.com)

Subject: Page 60307, 60.21, (b) & (c)

Clarification -1 --- "Specific conditions warrant otherwise" in para (b) and (c) - We interpret it to be a condition that is beyond sponsor's control, e.g. delay in release of final flight test data package, or unforeseeable production delay at simulator vendor(s), and sponsor will request for extension of time beyond one year. Is it correct interpretation?

Clarification -2 --- Say a Level C qualification subsequent to evaluation, of an originally Level D request for interim qualification, will require meeting only the failed criteria to obtain Level D interim qualification. Is it correct?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=238)

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Date: December 13, 2002 03:17 PM

Author: Ed Cook

Subject: Specific Conditions for Interim Situations

Clarification 1. The intent was to provide a standard for the timing requirements to complete data gathering and to develop and incorporate the results into the aerodynamic program. Circumstances sometimes develop that warrant an adjustment to that timing but deciding to allow an extension and determining the extension timing would be largely dependent on just what those circumstances are. For example; areas that would enter the decision making process might include the quantity and quality of the data, how the data was gathered and presented, the number and type of tests relying on alternative to flight test data, etc. Due to the fact that an FSD is used to train, test, and/or check flight crewmembers, circumstances beyond the control of the sponsor would, alone, not necessarily be sufficient to warrant an extension.

Clarification 2. Certainly, in some instances, the answer here would be yes. However, and significantly, the individual circumstances must be governing. If there were only a single issue preventing qualification at Level D, it might be that correcting that issue would allow the Level D qualification to be issued. However, often when one issue prevents Level D, other Level D tests are sidestepped in favor of time. Also, the action that is taken to correct the problem originally noted, may affect other areas that would be subject to review and/or re-test prior to the issuance of Level D qualification.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=276)

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Date: December 12, 2002 04:04 PM

Author: Jugal Saini (jugal.saini@nwa.com)

Subject: Page 60308, 60.25, (a)

Clarification --- Do "making a list of the currently missing, malfunctioning, or inoperative components readily available in or immediately adjacent to the FSD" and "placarding component or the control for that component in the FSD" suffice for sponsor to "allow the use of or offer the use of an FSD"?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=239)

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Date: December 13, 2002 03:18 PM

Author: Ed Cook

Subject: M/M/I Issues

No, not in blanket form. Certainly the requirement for providing a list of missing, malfunctioning, and/or inoperative (m/m/i) components is to allow the continued operation of the FSD – albeit, with some restrictions. It is those restrictions that are important. While the FSD may continue to be used with "m/m/i" components, it may not be used to conduct any task during training, testing, or checking that would require the correct operation of that(those) component(s).

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=278)

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Date: December 12, 2002 04:09 PM

Author: Jugal Saini (jugal.saini@nwa.com)

Subject: Page60308, 60.25 (b)

Clarification --- 7 or 30 days - Mismatch between Rule and rule in QPS appendix. Which is correct? Suggest change 7 to 30 days. Suggestion ---- NSPM should be replaced with TPAA; TPAA being more closely involved in day-to-day training.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=240)

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Date: December 13, 2002 03:20 PM

Author: Ed Cook

Subject: 7 days vs. 30 days ??

This question was asked and answered earlier – the NPRM Section 60.25 language, requiring "...missing, malfunctioning, or inoperative components (to) be repaired within 7 calendar days unless otherwise required or authorized by the NSPM..." is the correct language and should have been reflected in the referenced Appendix.

Thank you for your suggestion regarding the wording with respect to the NSPM and the TPAA.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=279)

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Date: December 12, 2002 04:54 PM

Author: Stephane Clement (stephane.clement@cae.com)

Subject: Page 60383 - 2.b

Could you please provide clarification regarding "Graphically displayed cockpit panels" which are fully functional for systems operations in all regimes of flight? If the "training establishment" agrees with the Graphic presentation, will it be accepted by FAA for FTD qualification?

ADDITIONAL CLARIFICATION: You are right, the use of quotation marks was somewhat misleading, since the "Graphically displayed cockpit panels" that we are referring to are not part of the text in the proposed rule. What we meant was, to what extent are touch screens with full functionality considered acceptable for FTD devices? For example, overhead panels, Autopilot Mode Control Panel, center console, MCDU can all be fully functioning as touch screens. Would this be acceptable for a Level 5 (or lower) device?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=244)

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Date: December 13, 2002 02:19 PM

Author: Ed Cook

Subject: Cannot find reference

Unfortunately, we are unable to find the language you are questioning, not only on the page you referenced, but we are not able to find that language anywhere in the document.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=261)

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Date: December 12, 2002 05:08 PM

Author: Stephane Clement (stephane.clement@cae.com)

Subject: Page 60391 - 4. Control Dynamics

There are usually no control dynamic checks for an FTD. Could you please clarify why this section was included for FTDs?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=245)

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Date: December 13, 2002 02:20 PM

Author: Ed Cook

Subject: Inadvertent Inclusion

Previous standards described a Flight Training Device (FTD) at Level 7, that did have control dynamic requirements. However, with the elimination of Level 7, this requirement should have been eliminated but was included inadvertently.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=262)

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Date: December 12, 2002 05:18 PM

Author: Stephane Clement (stephane.clement@cae.com)

Subject: Page 60306 - 60.17 (b) Grandfather Rights

Page 60306 - 60.17 (b) Grandfather Rights

With respect to section 60.17 (b):

"no sponsor may use (...) an FSD after [6 years after the effective date of the final rule] (...) unless that FSD has been issued a Statement of Qualification (...) in accordance with the procedures set out in the appropriate QPS".

.... Does this mean that Grandfather rights can apply only to a maximum of 6 years after the effective date of the final ruling?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=246)

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Date: December 13, 2002 02:21 PM

Author: Ed Cook

Subject: No bearing on Grandfather rights...

No, this proposed language would require FSD sponsors to obtain a Statement of Qualification for existing FSDs within the 6-year window described and has no bearing on "grandfather" rights.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=263)

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Date: December 12, 2002 05:36 PM

Author: Stephane Clement (stephane.clement@cae.com)

Subject: Page 60322 - 3.i

Level B tolerance was 300 ms, now it is 150 ms. Please confirm, is this intended?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=247)

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Date: December 13, 2002 02:22 PM

Author: Ed Cook

Subject: Should be 300 ms.

You are correct. The tolerance for Level B simulators in this test was to remain 300 milliseconds.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=264)

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Date: December 12, 2002 05:50 PM
Author: Stephane Clement (stephane.clement@cae.com)
Subject: Page 60386 - 7. Visual System

There seems to be a discrepancy between the requirements in the "QPS requirements" column and the "Additional Details" column: the 120-40C requirements for the visual were generally tighter than those proposed in the reference paragraph. This seems to be inconsistent with the wording in the Additional details column, where it is said that "Visual system standards set out in QPS FAA-S-120-40C for at least Level A simulators is acceptable". Could you please clarify the intent of this requirement? (Same discrepancy for Helicopter FTDs)

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=248)

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Date: December 13, 2002 02:24 PM
Author: Ed Cook
Subject: Clarification for Visual Systems on FTDs

The QPS Requirement language for the chart referenced in Appendix B, Attachment 1, Paragraph 7.(Visual System), Sub-paragraph "a." should read, "The FTD may have a visual system if desired, although, it is not required. If a visual system is installed, it must meet the following minimum criteria..." The word "minimum" was inadvertently omitted. The requirement under "Additional Details" is not in conflict with the correct wording, however the reference to "QPS FAA-S-120-40C" is erroneous and should be disregarded. Should the sponsor choose to seek additional authorizations due to the incorporation of a visual system, that visual system must meet the minimum requirements for at least a Level A simulator, as described in Appendix A of Part 60. The same holds true for the references in Appendix D, Attachment 1 for Helicopter FTDs.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=265)

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Date: December 13, 2002 09:48 AM
Author: Michael Brown (michael.d.brown@ual.com)
Subject: 60.17(b) 6 yr requirement for Stmt of Qual

Will there be any type of special evaluation required to obtain the statment of qualification for grandfathered FSDs or will the sponsor simply submit the forms shown in App A, Att 5, Fig 4A, B and be issued a statement of qualification.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=250)

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Date: December 13, 2002 03:36 PM
Author: Ed Cook
Subject: 6-Year Statement of Qualification

No evaluation will be required for currently qualified FSDs. This requirement was to provide for each FSD to have the same Statement of Qualification including the certificate, the configuration description and the qualified/non-qualified task list.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=284)

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Date: December 13, 2002 11:26 AM

Author: Stephane Clement (stephane.clement@cae.com)

Subject: Page 60304 - 60.7 (c)(1)

Could you please clarify how hours are calculated for a convertible device (is it 600 total hours on that particular device, or 600 hours/version)?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=252)

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Date: December 13, 2002 02:27 PM

Author: Ed Cook

Subject: Minimum Use for Convertible FSDs

The actual calculation would depend on the nature of the convertibility. If the convertibility of an FSD is minimal (e.g., having to do with differing engine models where the objective tests for those differing engine models are accounted for in a single QTG) and the FSD is identified by a single FAA identification number, the requirements would be 600 hours for that single FSD. If the convertibility of the device is more involved (e.g., having to do with a change in airplane series) and the FSDs are identified by different FAA identification numbers, the required use would be 600 hours for each FSD.

If there are those who have suggestions for modification of the language that would better convey the intent, we suggest you make those recommendations in accordance with the instructions contained in the NPRM under the "Comments Invited" section.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=267)

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Date: December 13, 2002 11:35 AM

Author: Stephane Clement (stephane.clement@cae.com)

Subject: Page 60315 - 11.o.

Please clarify how to deal with older type of simulators that use a lot of transparent overlays for comparing Simulator Data with Flight Test Data. For this type of data, electronic format will not work. Will scanning of the existing QTGs be sufficient?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=253)

Date: December 13, 2002 04:16 PM

Author: Ed Cook

Subject: Electronic QTGs

As many in the simulation industry are aware, the NSP staff is currently involved with several industry representatives in attempting to resolve issues (some like the one you mention) as well as those issues involving acceptable formats and computer applications that may be required.

We are hopeful that this effort will identify an appropriate format / computer application matrix that will afford the capability to do what we all believe is necessary for future operations.

While on one hand we recognize that some may believe 6-years is a relatively short time to address the existing simulator inventory, we also recognize that technology is advancing at what some would describe as an accelerating rate. We hope to be able to develop the necessary parameters within a time frame that will allow conversion of all FSD Master QTGs within the stated time goals. However, if there are those who have suggestions for modification of this language, we suggest you make your suggestions in accordance with the instructions contained in the NPRM under the "Comments Invited" section.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=292)

Date: December 13, 2002 12:02 PM

Author: Stephane Clement (stephane.clement@cae.com)

Subject: Page 60316 - 14.a(2)

The proposed rule states "Completes a functional preflight check (...) prior to the start of the first simulator period of use that begins in that calendar day".

In some training centers the maintenance periods are not at night but in the early morning, or even in some cases during evening hours. In case of a 24 hours operation (and depending on the scheduling of maintenance personnel), the functional preflight check might not necessarily be done prior to the start of the first simulator period of use that begins in that calendar day (which is normally shortly after midnight). Can we assume that it would be acceptable to the FAA if at least one functional preflight check was run for every 24 hour period, regardless of the time of the day?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=254)

Date: December 17, 2002 12:27 PM

Author: Ed Cook

Subject: Preflight Issues

We recognize that there are times when FSD maintenance periods may occur at virtually any time

around the clock. It was the intent of the FAA to not only have a functional preflight each 24-hour period during regular FSD usage, but to have that preflight conducted after any corrective or preventive maintenance that might have taken place at the conclusion of the "day's" use and prior to the next "day's" use.

If there are those who have suggestions for modification of the language that would clarify the intent as described above, we suggest you make those recommendations in accordance with the instructions contained in the NPRM under the Comments Invited section.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=314)

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Date: December 13, 2002 01:36 PM

Author: Stephane Clement (stephane.clement@cae.com)

Subject: Page 60316 - 14.a(5)(c)

Can we assume that using a centralized form of presenting the discrepancy log will be acceptable to the FAA, especially software logs which are not necessarily located in or immediately adjacent to the simulator but at more central locations?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=256)

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Date: December 17, 2002 12:30 PM

Author: Ed Cook

Subject: Use of Discrepancy Log

It is the intent of the proposed language in the cited reference that discrepancies (and their corrective action) be entered into a "discrepancy log" that would be maintained in or immediately adjacent to the FSD to provide users of the FSD with information about what systems or equipment is not operating correctly, and what action has been taken to correct discrepancies that have been recently entered into that log. This is to facilitate decision making on the part of the FSD user regarding the training, testing, and/or checking syllabus. Maintaining this log in a location that is not in or immediately adjacent to the FSD would defeat the purpose of having that log available to users of the device. However, if, for example, the "log" is maintained on a computer located at a "central location" that does not necessarily fit the description of "in or immediately adjacent" but users of the FSD would have access to a computer terminal that is located "in or immediately adjacent" to the FSD that would display the information described, we would consider this to be satisfactory.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=315)

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Date: December 13, 2002 01:50 PM

Author: Stephane Clement (stephane.clement@cae.com)

Subject: Pages 60331 and up : Table of Objective Tests

In the Table of objective tests, the test cases numbering has changed from Advisory Circular 120-40C (and JAR). The tests now start at number 2 instead of 1 (i.e. what was case 1a1, is now case 2a1). Is it the intention of the FAA to change the test numbering?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=257)

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Date: December 17, 2002 12:55 PM

Author: Ed Cook

Subject: Numbering

The numbering in the NPRM is as a result of the formatting process. However, if there are those who have suggestions for modification of the proposed rule language we suggest those recommendations be made in accordance with the instructions contained in the NPRM under the "Comments Invited" section.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=316)

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Date: December 13, 2002 02:25 PM

Author: Stephane Clement (stephane.clement@cae.com)

Subject: Page 60356 - 3.c.(2)

CAE believes the requirement for the crosstalk in the motion system to be "not perceptible" is too restrictive. As it is, customers often request that certain motion effects be highlighted even if they add perceptible elements of crosstalk. Wouldn't it be more useful to the industry if there was a requirement that simulators have no negative motion cues that are inconsistent with proper training?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=266)

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Date: December 17, 2002 12:57 PM

Author: Ed Cook

The subjective test should have read "...perceptible to the pilot in other degrees of freedom." Motion response should provide motion cues to the pilot as would the aircraft being simulated. Certainly, customer concerns should be accommodated, but we would object if those concerns resulted in simulator motion system response uncharacteristic of the aircraft.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=317)

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Date: December 13, 2002 02:32 PM
Author: Stephane Clement (stephane.clement@cae.com)
Subject: Page 60356 - 3.c.(3)

The objective test "turn around bump" is currently accepted industry wide. Could you please explain the rationale for replacing the objective "turn around bump" test with a subjective "smoothness" test?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=268)

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Date: December 17, 2002 12:59 PM
Author: Ed Cook

Due to the fact that this test, originally located in the objective test section of previously published standards, had no objective test result requirements, it made sense to move this test to the subjective testing attachment.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=318)

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Date: December 13, 2002 02:51 PM
Author: John Frasca (jfrasca@frasca.com)
Subject: Page 60304- 600 hour minimum

FTD's for general aviation aircraft can be economically justified based on usages of 100 or 200 hours a year. Has the lower complexity and lower effort required to evaluate FTD's been considered with regards to the 600 hour rule?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=270)

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Date: December 13, 2002 04:18 PM
Author: Randy Schwellinger (rschwellinger@atlasair.com)
Subject: 600 Hour Requirement

Was the 600-hour requirement's financial burden to the industry considered in the evaluation of this rule?

Two reasons are given as justification for this requirement. The sponsors "level of interest" and the "time, effort, and expense incurred by the Administrator."

Why is the required Quality Assurance Program together with the "level of interest" the actual owner/operator of a simulator we may sponsor, not sufficient to ensure quality is maintained? If we can justify sponsoring and/or maintaining a device at a significantly lower number shouldn't that take precedence since we would bear a greater financial burden should that device not be available?

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Date: December 17, 2002 01:44 PM

Author: Ed Cook

The burden on all who are involved in FSD use was considered when developing this particular section, as it was for all sections of the NPRM. The development of the 600-hour requirement is briefly discussed in response to the question above. Additionally, we recognize that an initial or upgrade training program for twenty 2-man crews, using an FSD for eight 4-hour periods for each crew would require 640 hours; and 600 hours would keep one hundred fifty 2-man crews legal each year for recurrent training/checking with each crew using a 4-hour FSD block once a year (assuming single visit authorizations).

While the Quality Assurance program will provide a valuable assistance to both the sponsor and the NSPM in being aware of and being able to track the day-to-day ability to provide competent and reliable training, testing, and/or checking for flight crewmembers, it is the use of that FSD in the FAA-approved flight training program that will afford the sponsor an ability (and a responsibility) to be sure of the "operational correctness" of that FSD. The existence of one does not replace the requirements or the facilitation of the other.

If there are those who believe that a sponsor's use of an FSD for 10% of its available time (given time for maintenance, modification, and upkeep) is an incorrect valuation or if specific circumstances might apply to having an alternative value used we suggest you make a recommendation for change to this area in accordance with the instructions contained in the NPRM under the "Comments Invited" section.

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Date: December 17, 2002 01:06 PM

Author: Ed Cook

The 600 hour requirement was reached after considering the number of hours an FSD would logically be able to be used in a year's time. As there are 24 hours in a day and 365 days in a year, there are 8760 hours available. If an FSD is available only 6 days a week and 20 hours each day it is used, for only 50 weeks throughout the year, the FSD will be available for 6000 hours. The question then became how much of that time should a sponsor be required to use the FSD in an FAA-approved program to warrant FAA qualification. We settled on 10% of that time, resulting in the 600 hours per year.

We recognize that some FSDs (particularly those lesser level FTDs for less technically complex aircraft) may require less effort to be maintained, and, in fact, may be found to be economically justifiable for a particular sponsor at a less involvement than the 600 hour requirement. If there are suggestions for modification of the language that would differentiate these situations, we suggest

you make those recommendations in accordance with the instructions contained in the NPRM under the "Comments Invited" section.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=319)

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Date: December 13, 2002 02:55 PM

Author: Stephane Clement (stephane.clement@cae.com)

Subject: Page 60385 & 60488 - 4.f

Under AC 120-45A Flight Training Device Standards, the common understanding of requirement "n" was that, since for level 2 and 5 the control forces and control travel needed only to be of sufficient precision to manually fly an instrument approach, the use of fix force gradient representative of approach condition was sufficient to meet the requirement.

Could you please clarify this proposed rule? For example, is the intent of Part 60 to allow the use of springs (fixed feel) in control forces for level 5 FTDs or not?

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Date: December 17, 2002 01:45 PM

Author: Ed Cook

The intent of the proposed rule was to incorporate the existing standards, as completely as possible, into a regulatory environment. However, we recognize, as most in the simulation industry are well aware, that this question (regarding level 2 and level 5) has existed, in one form or another, for quite some time. Arguments, "pro" and "con," have been made since the original publication of the standards in February of 1992. Legitimate arguments have been made for the elimination of the objective test requirements for these levels in favor of relying solely on the statement that "...control forces and control travel need only be of sufficient precision to manually fly an instrument approach..." However, objections to this approach have included the admitted deterioration of springs over time, resulting in a substantial change in the "control feel." The presentation in Appendix B of the proposed Part 60 regarding "Performance Parameters" (including ground control tests) being the governing factor was our attempt to address both issues simultaneously while providing a less problematic approach for both the industry and the FAA. If there are those who have specific recommendations regarding this matter we suggest you make your comments in accordance with the "Comments Invited" section of the NPRM.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=321)

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Date: December 13, 2002 03:02 PM

Author: Stephane Clement (stephane.clement@cae.com)

Subject: Page 60457 - 4.c. Leg Balance

These tests were deleted for fixed wing devices, but not for Helicopters. Is that intentional ?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=272)

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Date: December 17, 2002 01:46 PM

Author: Ed Cook

Yes, this was intentional.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=322)

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Date: December 13, 2002 03:06 PM

Author: John Frasca (jfrasca@frasca.com)

Subject: Page 60382, Level 2/5 control loading

Level 2 and 5 call for a control loading system that is representative.... only at an approach speed. Yet the table of objective tests lists tests for ground conditions. In the past we understood that simple spring loaders are adequate for Level 2 and 5. Please clarify. Are ground checks required in addition to the system being representative at approach speed?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=273)

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Date: December 13, 2002 03:44 PM

Author: Ed Cook

Subject: Level 2 & 5 Control Loading

This issue has been raised on a number of occasions without adequate discussion or resolution. The intent of including the language as present in the NPRM was to move from current practice to rule language as completely as possible. Without modification, the requirements are for ground control tests as indicated in the NPRM.

Note: our experience has been that even "simple" springs, when combined with other, more sophisticated mechanics provide rather sophisticated results.

However, if there are those who have opinions on the validity of these tests, we suggest that you make those recommendations in accordance with the instructions contained in the NPRM under the "Comments Invited" section.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=285)

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Date: December 13, 2002 03:08 PM

Author: Stephane Clement (stephane.clement@cae.com)

Subject: Page 60457

The Cue Repeatability test (3.e in the current AC120-63 Circular) is not listed in the table of ojective tests section 4. Is this intentional ?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=274)

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Date: December 17, 2002 01:48 PM

Author: Ed Cook

No, this was not intentional. Apparently this requirement was inadvertently omitted from the NPRM.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=323)

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Date: December 13, 2002 03:24 PM

Author: John Frasca (jfrasca@frasca.com)

Subject: Page 60513 Part 141- pilot schools

Currently Part 141 schools may use what is currently considered a Level 1 device and what the new rule calls an "other device". It appears that the proposed rule will require Part 141 schools to only use devices that are qualified under part 60. If this is the case it would appear that the economic impact evaluation and the statement of impact on small entities may need to be reconsidered. Could we get confirmation on the intent of the rule and if the impact on Part 141 schools has been considered.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=280)

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Date: December 13, 2002 04:08 PM

Author: Ed Cook

Subject: Impact on Part 141 Schools

Of course consideration has been given to the impact on all aspects of the aviation community. However, we recognize that, at times, we don't take into consideration all possible points of view. That is the primary reason for the public comment period prior to an NPRM being signed into law.

The proposed Part 60 makes no requirements on Part 141 schools, per se. Proposed Part 60 does require that only certain certificate holders may sponsor Flight Simulation Devices (FSDs)-- and Part 141 certificate holders are among those who may sponsor such devices. If they choose to sponsor an FSD, there are certain requirements levied on them as FSD sponsors. However, proposed Part 60 does not preclude any certificate holder (including Part 141) from using any

other device - although, some such devices may require FAA approval. Certainly devices used in FAA-approved schools must necessarily have such approvals.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=291)

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Date: December 13, 2002 04:32 PM

Author: John Frasca (jfrasca@frasca.com)

Subject: Credit and part 141

The proposed rule contains language for 141.41 and says "to obtain flight training credit (...) devices must be evaluated and qualified under part 60." Currently Part 141 schools can receive flight training credit with a level 1 device. Will part 141 schools still be able to receive credit with this same device? Or will they be required to use a Part 60 device to receive credit?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=296)

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Date: December 13, 2002 05:07 PM

Author: Ed Cook

Subject: Part 141 schools

The section of Part 141 you referenced says that "...each flight simulator (or flight training device, in the following section) used to obtain flight training credit allowed for flight simulators (or flight training devices, in the following section) in an approved pilot training course curriculum must be evaluated and qualified under Part 60." This means that any simulator or flight training device currently used by a Part 141 school to obtain the flight training credit that is authorized for a flight simulator (or flight training device, in the following section) must be qualified in accordance with Part 60, if not already so qualified.

The language in the Part 60 NPRM sets out definitions for Flight Simulators and Flight Training Devices. According to the definition of a Flight Training Device (FTD) - what is now referred to as a "Level 1" device would not be able to meet the definition of an FTD.

For your information, I would refer you to the section of the NPRM that addresses Part 61, specifically that section (Section 61.4) that says the Administrator "...may approve a device other than a flight simulator or flight training device for the purpose indicated in those sections of this part where the phrase "other device" is used."

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=298)

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Date: December 13, 2002 03:24 PM

Author: Stephane Clement (stephane.clement@cae.com)

Subject: Page 60492 - 3.a.(3) & (5)

Why are requirements more stringent for helicopter FTD's compared to fixed-wing FTD's? For example, (i) why are uninterrupted control sweeps to the stops required for helicopter FTD's (Levels 2 and 5) and not for fixed-wing FTD's, and (ii) why are dynamic responses required for Level 6 helicopter FTD and not for Level 6 fixed-wing FTD?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=281)

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Date: December 17, 2002 01:49 PM

Author: Ed Cook

The original requirements were established by an FAA/Industry working group when discussing the requirements for helicopter simulators. Subsequent development of standards for helicopter FTD's used these same standards because of the requirements of a helicopter vs. those of a fixed wing airplane. However, if there are those who have suggestions for modification of the proposed rule language, we suggest those recommendations be made in accordance with the instructions contained in the NPRM under the "Comments Invited" section.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=324)

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Date: December 13, 2002 03:29 PM

Author: John Frasca (jfrasca@frasca.com)

Subject: Page 60513 Part 142- Training Centers

Currently Part 142 training centers are required to have a FFS or Level 6 FTD. The proposed rule would seem to allow that any level of FTD would meet the facility requirement. Is this the intent?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=282)

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Date: December 17, 2002 02:12 PM

Author: Ed Cook

You are correct in your observation and this was not the intent of the FAA. The specific reference has to do with Section 142.15(d): "An applicant for, or holder of, a training center certificate must have available exclusively, for adequate periods of time and at a location approved by the Administrator, adequate flight training equipment and courseware, including at least one flight simulator or advanced flight training device."

The NPRM change to this section was to have substituted the term "Level 6" for the word "advanced" and was not intended to present the full range of flight training devices as being able to meet this requirement. If there are those who have recommendations for modification to this section to adequately present the intent as stated, we suggest you make your suggestions in accordance with the "Comments Invited" section of the NPRM.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=325)

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Date: December 13, 2002 03:32 PM

Author: Stephane Clement (stephane.clement@cae.com)

Subject: Page 60337 and 60389 - 3.a.(6)

Could you please clarify that "indicator vs. computed" implies "indicated vs. computed surface position" ?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=283)

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Date: December 17, 2002 02:13 PM

Author: Ed Cook

Technically, you are correct -- specifically, the referenced requirement was to compare the "computed" trim angle with what the flight crewmember reads on the trim "indicator." The language should have been "indicator vs. computed surface position."

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=326)

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Date: December 13, 2002 03:45 PM

Author: John Frasca (jfrasca@frasca.com)

Subject: Page 60344 Motion system requirements

How were the minimum excursions, velocity and accelerations determined? Do these have any correlation to the type of aircraft being simulated? ie a motion systems for a lower performance aircraft might not need the same performance as required for a high performance aircraft.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=286)

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Date: December 17, 2002 02:14 PM

Author: Ed Cook

These factors were determined by an FAA/Industry working group, consisting of motion system

specialists from around the country, in preparation for the development of the draft AC 120-40C. No correlation to type of aircraft was made, but rather concentration was focused on establishing minimum standards for simulation motion systems.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=327)

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Date: December 13, 2002 03:47 PM

Author: Jugal Saini (jugal.saini@nwa.com)

Subject: Page 60307, 60.23 (a)(1)

(1) The aircraft manufacturer or another approved source develops new data regarding the performance, functions, or other characteristics of the aircraft being simulated, (proposing to add) "subject to applicability to sponsor's aircraft fleet".

Clarification #1 --- Is "subject to applicability to sponsor's aircraft fleet" implied if not included in the above para?

Clarification #2 --- If new data does not impact "flight or ground dynamics, or performance or handling characteristics of FSD", will it still required to be implemented?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=287)

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Date: December 17, 2002 02:40 PM

Author: Ed Cook

Subject: New Data

Answer to Clarification #1: In general, we agree with the "implication" of the suggested phrase. By this we mean that our intent was that all changes be implemented as indicated if the airplane manufacturer or other data supplier provides an update unless the sponsor can explain why they should not have to do so. We recognize that an acceptable explanation might be that the available change does not affect the sponsor's fleet of airplanes, but an explanation would be warranted.

Answer to Clarification #2: To some degree, the answer here is the same as the answer to Clarification #1, above; i.e., our intent was that all changes be implemented as indicated if the airplane manufacturer or other data supplier provides an update unless the sponsor can explain why they should not have to do so. It is hard to conceive of a situation where the aircraft manufacturer or other data supplier would develop new data regarding the performance, functions, or other characteristics of the aircraft being simulated, but incorporating the data would not affect the performance, functions, or other characteristics of the aircraft being simulated. However, if the sponsor provides an adequate explanation as to why such a modification should not be incorporated it is likely that we would concur with the explanation. If the change is incorporated, but the change does not affect flight or ground dynamics, or performance or handling characteristics of FSD, the sponsor would not be required to notify the NSPM, but would be required to maintain a record of the modification.

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Date: December 13, 2002 03:56 PM

Author: Jugal Saini (jugal.saini@nwa.com)

Subject: Page 60307, 60.23 (c)(1), (d)(1) and (e)(1)

(d)(1) and (e)(1) requirements in (c)(1)--- Sponsor would not be able to comply with them. Clarification --- There is conflict between (c)(1), to include results of the appropriate objective tests in the notification, and (e)(1), that prohibits sponsor from making modification until authorized. Sponsor could provide list of appropriate objective tests that will be included in the MQTG after the modification.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=288)

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Date: December 17, 2002 02:41 PM

Author: Ed Cook

The intent was to address those modifications to an FSD that are not routine, regular maintenance issues (e.g., replacement of failed, broken, or worn parts or equipment), but was to address those modifications that could affect flight or ground dynamics; performance or handling issues; or simulator systems.

It is also the FAA's intent that any modification to the FSD would necessitate maintaining a record of that modification. However, as mentioned above, modifications that affect flight or ground dynamics; performance or handling issues; or simulator systems would require prior approval of the NSPM prior to those modifications being incorporated into an FSD for flight crewmember training, testing, and/or checking purposes.

If there are those who have suggestions for modification of the proposed rule language, we suggest those recommendations be made in accordance with the instructions contained in the NPRM under the "Comments Invited" section.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=329)

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Date: December 13, 2002 07:03 PM

Author: Kendall W. Neville (kendall.w.neville@boeing.com)

page 60332 test 2b2

In the ICAO Manual, both 1st and 2nd Edition, the following statement is included for the Vmcg test: "If the modelled engine variant is not the same as the airplane manufacturer's flight test engine, then a further test may be run with the same initial conditions using the thrust from the flight test data as the driving parameter." This statement was not included in the draft Part 60. Was this intended?

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Date: December 17, 2002 02:42 PM

Author: Ed Cook

Thank you for pointing out the error. The intent of the FAA was to have the Test Details column of the referenced test read as follows: "Engine failure speed must be within ± 1 knot of airplane engine failure speed. Engine thrust decay must be that resulting from the mathematical model for the engine variant applicable to the simulator under test. If the modeled engine variant is not the same as the airplane manufacturers' flight test engine, then a further test may be run with the same initial conditions using the thrust from the flight test data as a driven parameter."

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=330)

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Date: December 13, 2002 07:06 PM

Author: Kendall W. Neville (kendall.w.neville@boeing.com)

Subject: page 60333 test 3b6

page 60333 test 3b6

For the crosswind takeoff test, the ICAO Manual 1st Edition states, "Requires test data, including wind profile, for a cross-wind component of at least 20 kt or the maximum demonstrated cross-wind, if available." Draft Part 60 changes the words to, "for a cross-wind component of at least 20 Kts., but not more than the maximum (or maximum demonstrated) crosswind for the airplane." Was the addition of the words, "but not more than the maximum (or maximum demonstrated) crosswind" intentional? It seems unlikely that data for a crosswind greater than the maximum demonstrated could be provided. The corresponding words in the ICAO Manual 1st Edition are, "Requires test data, including wind profile, for a cross-wind component of at least 20 kt or the maximum demonstrated cross-wind, if available".

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=303)

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Date: December 17, 2002 02:43 PM

Author: Ed Cook

Thank you for pointing out the error. The Test Details column of the referenced test should have read as follows: "Record takeoff profile from brake release to at least 200 ft (61m) AGL. Requires test data, including information on wind profile (i.e., wind speed and direction vs. altitude), for a cross-wind component of at least 20 Kts. or the maximum demonstrated cross-wind, if available."

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=331)

Date: December 13, 2002 07:09 PM

Author: Kendall W. Neville (kendall.w.neville@boeing.com)

Subject: page 60334 test 3c4

page 60334 test 3c4

For the one-engine-inoperative approach climb test, PART 60 replaces the words used in AC120-40B and in the ICAO Manual, both 1st and 2nd Editions, "near maximum certificated landing mass" with the words, "not less than 80% of the maximum landing weight". Should the same revised wording be used for other tests (such as Rejected Takeoff and Critical Engine Failure on Takeoff) where weight is still specified as "at or near maximum takeoff weight"?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=304)

Date: December 17, 2002 02:44 PM

Author: Ed Cook

Thank you for pointing out the error. The use of the term "at or near," while reasonably understood by members of the engineering and simulation communities, is difficult to specify when couched in regulatory terms. The intent of the FAA was to provide a specific term (e.g., "...not less than 80% of the maximum landing weight") to preclude unanswerable questions regarding now "near" would be "near enough." All references to "at or near" should have been replaced with an appropriate minimum or maximum value, as expressed in the example above.

If there are those who have suggestions for modification of the proposed rule language that would better convey the intent, we suggest those recommendations be made in accordance with the instructions contained in the "Comments Invited" section.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=332)

Date: December 13, 2002 07:11 PM

Author: Kendall W. Neville (kendall.w.neville@boeing.com)

Subject: page 60339 test 3c3

page 60339 test 3c3

For the Spoiler/Speedbrake Change Dynamics test, draft Part 60 does not include a requirement for, "results required for both extension and retraction" as is included in both the 1st and 2nd Editions of the ICAO Manual. Was that difference intended?

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=305)

Date: December 17, 2002 02:47 PM

Author: Ed Cook

Thank you for pointing out the error. The Spoiler/Speedbrake Change Dynamics test should have included a requirement for both extension and retraction cases.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=333)

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Date: December 13, 2002 07:13 PM

Author: Kendall W. Neville (kendall.w.neville@boeing.com)

Subject: page 60341 test 3d3

page 60341 test 3d3

The description of the Roll Response to Cockpit Roll Controller Step Input test has changed in draft Part 60 so that it is different from both the 1st and 2nd Editions of the ICAO Manual. Was this intentional? It is recommend that if a more detailed description of this test is desired, the words in the Test Details be same as 2nd Edition, "with wings level, apply a step roll control input using approximately one-third of roll controller travel. At approximately 20° to 30° bank, abruptly return the roll controller to neutral and allow at least 10 seconds of airplane free response."

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=306)

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Date: December 17, 2002 02:48 PM

Author: Ed Cook

The FAA recognizes the difference between the proposed wording and the wording that is found in the ICAO Manual of Criteria for the Qualification of Flight Simulators, First Edition. The difference was to codify into regulatory language the process that was the accepted industry practice. However, if there are those who have suggestions for the modification of the proposed rule language, we suggest those recommendations be made in accordance with the instructions contained in the NRPM under the "Comments Invited" section.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=334)

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Date: December 18, 2002 03:56 PM

Author: Ed Cook

Subject: THANK YOU

I would like to take this opportunity to thank all of you who took the time to read the NPRM and ask the questions that have been posted here. It was our desire to provide you with meaningful answers to those questions in the sincere hope that this information would be of assistance when or if you submit

comments and/or suggestions in response to the "Comments Invited" section of the NPRM.

(http://66.89.54.45/Forums/Index.cfm?CFApp=4&Message_ID=338)